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IMPROVED LIFT AND FORCE-PUMP.

Miners, when sinking on a lode for the purpose of testing its value, or when desirous of ascertaining the merits of a deserted claim by pumping out some old water-filled shaft, often find it necessary to use hand-pumps. In working *placere* or creek or river diggings they are also frequently needed. It becomes an object then to know which is the most powerful, simple, economical and handy pump to use. We illustrate a good one in this issue—the inventor of which, Mr. Levi P. Dodge, of Newburgh, N. Y., has made the science of hydraulics his study for years with the object of simplifying the construction, increasing the durability and diminishing the liability to derangement of hand and other pumps. A patent was granted him, May 13th, 1862. The Eureka Pump Company purchased this patent in July, 1864, for the whole United States, and under it are manufacturing several styles of pumps combining the same principles, among which the Horizontal Pump is well worthy the attention of mining men. Fig. 1 is a perspective view of their vertical pump, and shows its application in a shaft. Fig. 2 (see next page) shows a section through the cylinder, water ways, valve boxes, and air chamber. The piston rod is of copper, the piston of best composition brass, fitted perfectly to the cylinder, without the necessity of leather packing. The valves are spherical, and have corresponding seats in the top plate of the pump, and in the passages below. The barrel and side-pipes are cast in one piece, flush on the top, and planed at one operation, so that the air chamber and pump cover fit accurately upon it; the bottom and the casting that contains the seats of the inlet valves are likewise planed and fitted. The suction-pipe, at the bottom, is coupled by a union joint. This pump works well in water that has lumps of any kind in it; the ball valves do not get wedged, but go back to their seats at the next stroke if anything is caught. And it will be seen that the piston and valves can easily be got at for adjustment or repairs. The partition and valve stops in the air chamber are cast solid with it, and all parts, as will be observed, are simple in form and easy to finish. This pump is applicable to every variety of use for which one may be required. Aside from its use for ordinary purposes, it is invaluable as a fire engine, into which it may be transformed in a moment, by the attachment of hose. A new Self-Packing Oil Pump is also made by the Eureka Company, combining many of the excellent points of their other designs. Oil men will do well to examine it. Office and salesrooms, No. 57 Fulton street, N. Y.

Coal and Iron.

In England and Wales there are seventeen coal-fields. By far the largest of them is that of South Wales. Out of the fuel which it contains might be shaped a mountain, with a height three times that of Snowdon, and a base of 1,000 square miles. Its greatest thickness is 10,000 feet, exceeding that of any other in the world, save the basin of Nova Scotia. Its present yield is 90,000,000 tons a year, and the same annual produce may be drawn from it for two milleniums to come. Next to it in size is the Derbyshire and Yorkshire coal-field, which yields more than 12,000,000 tons a year, and can go on doing so for seven centuries without being exhausted. In it there are 541 collieries, spread over a surface of 760 square miles. The great Durham and Northumberland basin, which furnishes Newcastle coal, covers an area of 460 miles, and contains 268 collieries, whence are dug about 16,000,000 tons of coal each year. The Lancashire district, with half the area, yields about half as much coal, though giving work to 390 collieries. The

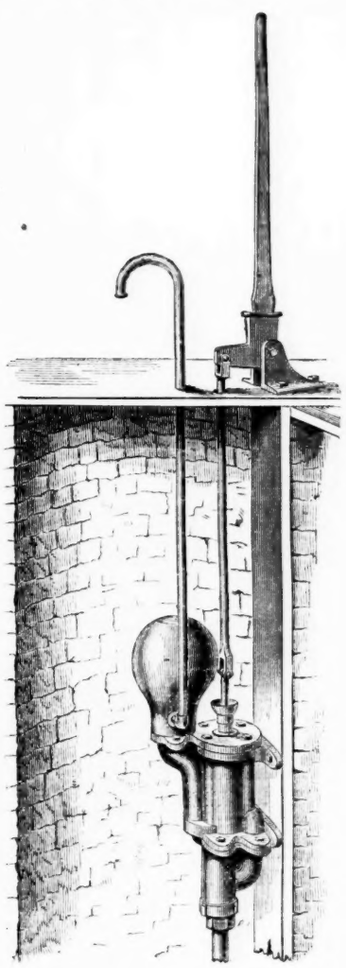

Fig. 1.—THE EUREKA PATENT PUMP.

other English deposits are all of them much smaller, and, taken all together, do not furnish so much coal as the Durham and Northumberland district. Some of them, like the famous Colebrook Dale field, in Shropshire, are already nearly exhausted. In Scotland there is one vast deposit, touching the southern slope of the Grampian Hills, with an area of about 1,720 square miles, at the present yielding less than 10,000,000 tons a year. Altogether Great Britain now produces nearly 70,000,000 tons each year, less than half that quantity being drawn from all other parts of the world. Even if there be excuse for fearing that we are using up our fuel too fast, it is evident that we are using it to wonderful advantage. "We are living," as Robert Stevenson once said, "in an age when the pent-up rays of the sun, which shone upon the carboniferous forests of past ages, are being liberated to set in motion our mills and factories; to carry us with great rapidity over the earth's surface; and to propel our fleets, regardless of wind and tide, with unerring regularity, over the ocean." The chief commercial advantage resulting from the increase of the coal trade has been its advancement of iron mining and iron manufacture. In 1741, before charcoal and coke furnaces were introduced, only 17,350 tons of iron were produced in the whole of Great Britain. In 1848, the quantity was eighty times as great. In 1857, it had risen to 3,659,447 tons. In 1865, it was not less than 4,200,000 tons. Of Scotch pig iron, about 1,164,000 tons were produced, chiefly in Lanarkshire and Ayrshire. Quite as much came from Glamorganshire and Monmouthshire; and about 40,000 tons from Flint and Denbigshire. Of the English iron fields, the Northumberland, Durham, and Yorkshire districts yielded about 750,000 tons; the Derbyshire and Cumberland about a third as much. From Staffordshire and Worcestershire were drawn some 900,000 tons; and from Shropshire and its neighborhood about a quarter as much.

The market worth of this pig-iron was not less than £12,000,000; and it was reduced from about 12,000,000 tons of iron-ore, by means of nearly 700 blast furnaces.—*London Society.*

One Hundred Million Dollars Annual Gold Product of Africa!—A Private Claim Against France.

Washington correspondence says that Mr. R. A. Parrish, of Philadelphia, has petitioned the House of Representatives, asking its intervention in a case of alleged spoliation by the French government, amounting to fifteen millions of francs. The claim rests upon the personal parole of the Emperor given to the petitioner at an extraordinary audience appointed for the purpose, and was to have been embodied in a treaty, of which, together with all his other interests, he says he has been fraudulently deprived. The sum above named was promised for the claimant's demonstration of auriferous territory similar to that of California, since conquered and annexed to France, situated on the Kong Mountains of Africa, on the west coast, and from which the government of France has already derived great mineral wealth, her gold coinage for many years since then having attained the unprecedented sum of more than a hundred millions of dollars annually.

The Formation of Coal Seams.

A paper by Mr. Skey, a Chemist at Otago, New Zealand, communicated to the Royal Society of Edinburgh, contains some original suggestions as to the formation of coal seams. The agencies supposed to be at work in the formation of coal are, decomposition, heat, and pressure; but Mr. Skey considers that these are insufficient to produce coal in the state in which it actually exists. The effect of heat, for example, he speculates, would be to convert a certain amount of

the material into gas, which, imprisoned in the mass, would give it a vesicular structure which no amount of pressure afterwards applied would suffice to remove. Mr. Skey's own notion appears to be that coal owes its actual compact condition to the power it possesses of absorbing organic matters (and saline matters also to some extent) from their solutions in water. This absorptive power, he says, will enable the coal to arrest those organic matters contained in common water, and a continuel supply of such being kept up by the flow of water down to the level of the sea carrying the necessary material, we may have the compactness of the same largely augmented. In his experiments, Mr. Skey used the brown coal, or lignite, of New Zealand, which is generally believed to illustrate an intermediate stage of coal formation. This brown coal the author found to be soluble in water to

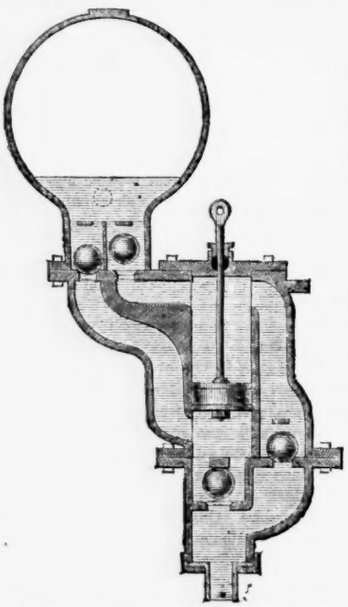

Fig. 2.—THE EUREKA PATENT PUMP.—See 1st Page.

some extent (bituminous coal he also states, is soluble to a slight extent,) and the matter dissolved from the surface, being retained by interior absorption, goes to augment still further the compactness of the seam, while the surface absorption builds up the seam to greater thickness. In this case, he adds, we require no miraculous interposition of pressure to remove the vesicularity which decomposition entails in the indurated mass, and the theory of surface absorption reduces the difficulty we have in accounting for the remarkable thickness which has been attained by certain coal seams. We give this bare outline of Mr. Skey's theory, founded upon experiments which look satisfactory, and leave him to the geologists. We advert, however, to one other point which may have some practical interest to gas manufacturers. The author was at a loss to account for the large amount of sulphur he obtained from coals containing only traces of pyrites and sulphates. Actual experiment showed him that the coal had absorbed a considerable amount of sulphuretted hydrogen, which was evolved on heating the coal to 212 deg. or 300 deg. Fah., a temperature which precludes the idea of any reduction of the sulphide or sulphates.—*Mechanics' Magazine.*

Lunar Eruption.

A Volcano in the moon is said to be in active eruption. The crater called Linne has been lately observed to be obscured, and it is said the same darkness was observed on this spot in 1788. The London *Spectator* says: "The impression is that an eruption is going on, but if so, must not the moon have an atmosphere? Could combustion take place without oxygen? Would the smoke—the carbonic acid gas—rise without some heavier gas, like atmospheric air, to rise in?"

A Flinty Cave.

The researches of M. Dupont in the caverns and quaternary deposits along the course of the river Leese, in France, have been attended with considerable success. Fourteen caves were discovered; in one of which, the Chaleux Cave, about thirty thousand flint implements have been exhumed, together with a plentiful assemblage of the bones of the reindeer, goat, ox, horse, boar, brown bear, fox, badger, polecat, hare and water rat. Most of these animals are supposed to have served as food for man.

Mining Summary.

GOLD AND SILVER.

Nevada.

Governor Blade, in his recent message to the Legislature of this State, said: Mining has become systematized, science and invention are brought to the aid of labor, and a business once considered speculative and hazardous, has become legitimate and safe. In the past year much larger quantities of the precious metals were taken from our older mines than that preceding. The developments made in the new districts are more than satisfactory. In some localities where twelve months ago minerals were not supposed to exist in sufficient quantities to be worthy of attention, mines of great value have been discovered, and from some of them large amounts of bullion have been received. We may reasonably expect, during the ensuing year, new and more valuable discoveries, greater developments, and increased products. Our mines, though permanent, extensive and rich, are not our only source of wealth. Our agricultural lands are productive and gradually being occupied, improved and cultivated. The time is not far distant when we may confidently expect them to yield an abundance for home demands.

The Comstock.—The *Enterprise* says: The Yellow Jacket Company have opened a fifth level in their old works, at the depth of 600 feet, where they have a good body of rich ore, which they will proceed to take out when the retimbering of their old shaft is completed .....The Ophir Company are drifting east from their shaft, in hopes to strike the rich lead now being worked by the Hale & Norcross and the Savage Companies. They have recently encountered an increased quantity of water in their shaft.....The fine stream of water recently struck in the Cole tunnel seems to have subsided down to forty inches, at which point it stands, with no apparent inclination to subside further. It is a very valuable stream as it is. .....The Kentuck Company are sinking their shaft one hundred feet deeper than at present. The Yellow Jacket and Crown Point companies are also soon to commence sinking deeper.....The Gold Hill *News* says: The dumps of all the working mines are full to overflowing, especially in Gold Hill, on account of the almost impassable state of the roads, rendering hauling to the mills nearly out of the question. In consequence of this a large proportion of the mills, both in this and Lyon counties, have had to suspend operations entirely. The Rock Point mill on Carson river, belonging to the Imperial Mining company, is still crushing away uninterruptedly at the rate of over 100 tons per day, with plenty of ore on hand. The secret of this is that the contractor for the hauling was smart enough to rush business, under the direction of the company, last fall, and when the roads became bad several tons of ore had accumulated at the mill. There is enough there to last some time longer. This is a plan which might have been adapted with great profit by all other mills, and will operate as a useful hint in the future. Trench's mill, at Silver City, is similarly favored.

Lander.—The *Reveille* says: The following statistics of the produce of the mines in Lander county for the quarter ending December 31, 1866, are shown by the books of the Assessor:

Names.	Ton	Lbs.	Avr.T
Diana	143	1,909	$91 18
Amsterdam	1	250	168 75
Buel North Star	4	1,920	336 57
Camargo	12	973	116 57
Chase	4	1,438	405 10
Enterprise (White Pine District)	1	.....	111 53
East Oregon	4	779	187 65
Empire State	7	619	99 22
Ensign	1	667	66 25
Fortune-Teller	4	416	177 28
Florida	13	1,900	255 60
Fenian Star	7	1,359	54 24
Fortuna	1	1,520	30 33
Farrel	3	1,453	71 12
Great Eastern	287	.....	217 94
Idora	22	1,695	220 42
J. R. Murphy	1	100	251 18
Joseph Cole	1	1,350	27 85
Jacob Bradley	1	.....	116 80
Keystone	2	350	194 66
Killock	1	.....	197 27
Zaidee	1	728	100 61
Lodi	7	1,019	32 54
Livermore	3	500	157 79
Mount Tenabo Co. (Cortez)	...	.....	.....
Morgan & Munsey	4	626	25 69
Magnolia	6	1,671	338 23
Metacom	26	.....	100 99
Manhattan Company	69	288	83 90
May & Davis	2	430	136 80
North River	13	1,924	56 03
Owen & Perkins	3	1,700	46 16
Providential	64	844	54 91
Pinney, Rev	6	600	51 73
Patten	2	824	200 43
Remington	6	1,500	49 63
Savage Consolidated	451	.....	103 25
Silver Queen	14	1,913	38 28
Surprise	1	.....	171 66
Semanthe	2	150	332 52
Timoke	79	1,138	148 41
Taylor & Passmore (Cortez)	5	982	160 43
Tunnehill (Eureka)	3	1,338	106 35
Victoria	4	1,176	91 20
Washington	12	67	479 52
Whitlatch Union	18	546	105 97
Zimmerman	5	1,278	71 75

The above table embraces forty-seven mines, which have yielded more or less bullion during the quarter, and, with a few exceptions, the ore reduced is of good grade, sufficiently so to admit its being worked here remuneratively. It will be observed that a number of mines, which were included in the previous quarters of the year, do not appear in the present list, as well as that several mines appear for the first time. According to the Assessor's returns there are in Lander county—and mainly in the Reese River District—fully seventy-five mines which have produced bullion durthe past year. As we have remarked, the ore worked is very generally of a high grade, as the average yield per ton will show. A considerable number of the mines embraced in the quarterly lists were subjected only to testing operations, and the general result must be deemed very encouraging, and their excellent character augurs well for the future of this district. In the case of the Savage mine, the average yield of the ore is less than in several quarters preceding, but is still high, being $103 25 per ton. The yield of the Washington, Chase, Buel, North Star, Great Eastern, Semanthe, Magnolia, Florida, Timoke, Idora, Metacom, Taylor and Passmore, etc., is grand, and as most of them are pretty well developed, they may be fairly classed, henceforth, among the producing and paying mines of the Reese River District.....The *Reveille* declares that the figures of the Gold Hill *News* (see last issue of JOURNAL OF MINING,) so far as Reese river is concerned, are not correct. Instead of Reese river being credited with only $400,587, it should have been $940,034 07, the difference between the two amounts to be subtracted from the amount credited to the Comstock.

Pahranagat.—Mr. W. B. Cogswell gives the Austin *Reveille* the following news: There is a mill of five stamps at Hicko, where there is a fine spring of water of the temperature of 74 degrees. The mill commenced operations by crushing the ore wet, as it was not deemed necessary to roast it, but experiment proved that it must be treated by fire, and the battery was changed to a dry crusher. One wretched furnace was erected out of such poor materials as to be wholly inefficient. The mill worked rock from the Illinois ledge, which is of a high grade, but it was not successful on account of deficient roasting. According to Mr. Cogswell the Illinois crops out boldly to the height of twenty feet, and is fully twenty feet wide. Tests made of the best mineral from this ledge put its value at $200 per ton. The district is better supplied with water than was first believed. At Silver Canon, the site of the principal mines, there is a settlement, but very little water; at Logan's there is also a settlement, and a small spring, and lower down the valley the valley there are Crystal Spring, Ash Spring, and the spring at Hiko, all tributaries of Pahranagat Lake. Crystal Spring runs 1,500 inches of water of the temparature of 91 degrees, and has a fall of fifteen to eighteen feet, which would afford good motive power. The valley is represented to be very fertile, and contains fully thirty miles susceptible of profitable cultivation. A considerable portion of this tract will be planted this year. It cannot fail of yielding good crops, as it may all be irrigated. A ten stamp mill had arrived at El Dorado Canon by the river, and was being hauled to Pahranagat by the way of Callville at twelve cents per pound. Dr. Conger has also a five stamp mill at the canon, which will be hauled though shortly .... The Salt Lake City *Vidette*, Jan. 26th, says: Messrs. Crippen and Raymond arrived on Thursday from the Pahranagat mines, where the former has been for some time engaged in scientific explorations and the testing of ores. The latter, as the representative of eastern capitalists, has invested largely. Mr. Ely accompanied the party, he having sold out his interest for $55,000, and will at once proceed East. The specimens he takes with him bear indications of the richness of precious ores which abound in those regions. The bulk of the ore destined for the eastern market, has been shipped by the way of Austin and San Francisco. These gentlemen say that the results far exceed their most sanguine expectations. On the other side, we learn that Dr. Conger is not so sanguine, his operations not being so successful as the others, but it was in consequence of the failure in his smelting operations, he having not been engaged in the pursuit of mining. There is sufficient evidence, however, that next spring there will be an extensive emigration to Pahranagat, and the mines throughout Utah The Buel mill, at Hot Creek, is said to be turning out at present $18,000 of the precious metal per month.

Humboldt.—The *Register* says: The General Grant ledge was recently bought by the Pioneer & Inskip M. & M. Co., of New York, which owns other ledges and property in this county. Mr. Fall has just worked two tons of rock from the ledge, procuring thirteen pounds of crude bullion which he is confident is worth about $8 the pound. This is no big thing, to be sure; but it indicates a long stride forward thus, this ledge was found, of good size and well-defined, four years ago. Work was commenced, and the ledge found in good shape, looking rich, in the tunnel. A lot of rock was taken to the mill and worked. It yielded nothing. At this rate of progress, in twelve years more, unassorted rock from the Grant will pay $416 the ton—making it one of the richest mines in the State. We suspect the difference above shown is

entirely due to improvement in the process of amalgamating. The rock contains a very large percentage of base metals, and it was decided, four years ago, that it could not be worked without roasting.

Silver Bend.—The *Reveille* says, that in this district operations on several mines were progressing favorably. The Combination Company were engaged in running tunnels to cut the ledge in their claim on the Highbridge; the first is intended to cut it 200 feet below the out crop, and the second 100 feet below that. We did not learn the extent to which the tunnels had been driven into the hill. Colonel Buel's location on the Highbridge is said to be yielding ore of an improved quality. It is opened by three inclines, a short distance apart, which are connected by drifts. The greatest depth attained is sixty feet. The location of W. F. Leon, on the El Dorado ledge, is also being opened by an incline shaft. Other ledges belonging to the Combination Company were being worked with improving success. A small but very rich vein of mineral had been discovered about a mile north of Buel's mill, at Belmont, which had caused a little quickening of the pulse and the motion of prospectors temporarily checked by the deep snow. It was named the Silver Chord, and its thin vein of ore pronounced the richest yet exhibited in the district, had widened to eighteen inches at the depth of several feet.

New District.—The Gold Hill *News* says: A new discovery of mines has been made in the mountains some eight miles northeast of this place, which are thought to be rich in silver. A gentleman informed us that he saw some of the ore taken out near the surface that showed native silver. The ledge is said to be four feet wide, and showing excellent ore in every part of it. Several persons have gone out to see the new district, and within a day or two more will be known the merits of this discovery .. In a subsequent issue of the *News* it speaks of their return. They brought in some of the ore with them, which looks well. Some of it shows free gold. The ledge is from one to three feet in width. Some of the parties who were out to see the mines, and with whom we conversed, think well of them; while others who were there think the ledge nothing but a small spur, and will not amount to anything of consequence. The ore we saw was evidently rich in silver and gold. The discoverers of these mines, however, seem to think they have found their fortunes.

Colorado.

A letter from James Creek Point, Jan. 18th, in the Golden City *Transcript*, says: The new mines on James Creek discovered and developed the past summer, are the wonder of the age. The quartz thrown up to the surface in wide veins, averaging from six to ten feet wide, consists mostly of copper pyrites, mixed with galena, with some arsenic and a small amount of bismuth. On the north fork of James Creek the indications are a black vein of the oxide of lead within a space of thirty to fifty feet of one another - the veins terminating at a depth of two or three feet in pyrites. The great advantage these mines here have over those in other parts of the Territory are their vicinity to the Plains, it being only seven miles. The mildness of the climate, the ease of obtaining the precious ores, especially on the river banks, and the unusual width of the crevices, all tend to make this point the more desirable as a mining locality. Some dozen or more lodes have been sunk to the depth of thirty-five feet, with as yet no indications of capping over. The astonishing growth of the place bears testimony to the character of the ores. The first of October there was but one house here and one hundred miners. Now the place numbers some one hundred houses and four hundred persons. Some very fine nuggets of gold have been panned and retorted from top quartz. Several stamp and saw mills, and a number of furnaces are in preparation and are coming in as soon as the road now being completed up the creek is in order, which will not be many weeks hence. Preparations are being made for furnishing large quantities of gold-bearing quartz. Some four million feet, round measure, of saw logs are now cut and ready for sawing. The gulch mines, opened by Cobb & Co., from the depth of eight feet down panned as high as $2 38 to the pan, fourteen feet to the bed-rock, on which is found nice shot gold. Crevice quartz has gone as high as one dollar to the pan..... The Denver *News*, Feb. 6th, says: The treasure shipments eastward in the past week amounted to less than twenty thousand dollars—the smallest in a long while. This is accounted for by several reasons. The destruction of the Ni-Wot mill reduced gold production for some weeks past, recently, and more or less serious disasters have occurred to several of the mills about Central, by the breakage of machinery or the flooding of mines. Our Central City exchanges note the starting up of several of these mills, so there is good reason to expect an early increase in the yield of the precious metal. The silver furnaces at Georgetown and elsewhere throughout the Territory will also soon start up and swell the current. It will not be long, either, until gulch mining will begin in the south-western counties, and before midsummer the weekly export will be ten times the present monthly average.....The same paper speaks of 100 lbs. average ore in Denver from the Hattie Jane lode, in Granite district, Lake county, which gives most remarkable results in every test. The smallest piece pulverized and panned down invariably gives a good prospect of free gold. Prof. Schirmer recently made an assay from it which gave at the rate of $1,307 72 in gold per ton. The specific gravity was found to be 3.236, which would require 12.94 tons to make a cord—making the yield per cord $16,927 00. The gold is free and hence easily worked. ..... The *Gazette* of same date says: Some very heavy assays have been lately made of the silver lodes in the neighborhood of Georgetown. There is scarcely any doubt that these mines are as good as any in the country. The crevices are, however, generally smaller and the seams of paying ore less than most of the Snake River lodes.....A Central City correspondent writes Jan. 30th: The Briggs mine, after two or three efforts to start up, and keep so, has from all accounts given some promise, or its owners at least intend that the right foot shall be put forward before many weeks and then there will be no "looking back." The Smith & Parmelee mine seems to be running most of the mills in Black Hawk, not desulphurizers, &c., but the ancient and reliable stamp mills, abandoned as worthless, sold in some instances for old metal, but now remodelled, and growing rather than decreasing in popularity. Another rather heavy shipment of silver is to made from Georgetown shortly, taken from the John Brown. The Anglo-Saxon is being worked vigorously by the parties who found such a cheap bargain in the "sheep hunter." I am credibly informed that recent tests from selected ore yielded as high as four dollars to the pound.....The *Times* (now published in Central City), Feb. 5th, contains the following: The last week's run by the Black Hawk G. M. Co. was 105 ounces "clean bankable gold." The returns from many of the larger mills, this week, are expected to be an increase on the previous ones, as the weather has moderated, and men and mills have a better chance to do good service .....The Gunnell G. M. company, per Mr. Fitzpatrick, manager, realized 224 ounces of nice gold from their last week's run, ending yesterday evening .....By the way, we learned lately from outside, but reliable authority, that this makes the 102nd shipment of the Gunnell gold mining company to the States, and that the 102 shipments made a total of $850,000 00, or, as we figure it, about a steady average each week of 3,500 00, currency valuation. This looms up pretty well. The company, we heard, have taken out during the last six months, if not through the year back, gold enough to pay their whole expenses in coin, thus giving the enormous margin of premiums on gold during the past year as profits to the concern.

.....This morning again there was considerable gold shipped from here, by Wells, Fargo & Co. to the great metropolis. George T. Clark & Co., bankers, shipped $2,250 00; Warren Hussey & Co., bankers, $5,155 00; R. M. National Bank, $4,800 00, and the Manhattan Gold M. company $750 00. The Smith & Parmelee G. M. company, per D. D. Belden, Esq., manager, made 146 ounces of gold from their last week's run; but they, like scores of other institutions hereabouts, ship east only once a month, or semi-occasionally.... Col. W. H. Doe, of the Sierra Madre company, has his Eureka mine to a depth of 276 feet, and is clear out of "cap." Through the latter he fathomed full 45 feet since the 1st of Dec .... Many of the mills in this county and Clear Creek, which have been idle for a few months on account of the weather or repair work, are starting up again in good earnest. Among these we learn are the Briggs company's large mill, which set twenty stamps in motion on Monday morning. Peregrine's 18-stamp mill, Aldrich's ten-stamper and several others have sounded their whistles and will swell the chorus from now to spring. Ten months more these mountains will be musical with the whistles of "whims" and "crushers".....The Chicago *Republican* has a long article upon the North Star gold and silver company, from which we learn the following particulars: The mine of this company is on the celebrated Illinois lode at Quartz Hill, Gilpin county, Colorado, within three-quarters of a mile of Central City. The property consists of three hundred and ten feet of territory, an eighteen horse-power engine in perfect order; twelve stamps for crushing; effective hoisting apparatus, and a mill building, 60 by 80 feet, with all necessary and modern fixtures. Of the value of the ore obtained from this lode little need be said, inasmuch as the experience of all practical miners has placed it among the very first-class claims of the country. It possesses a very wide crevice, often from four to six feet on the surface, and the ore is principally a rich sulphurate of copper. The mine itself possesses five shafts, three of which are well timbered and ventilated, and all of which are in working order. The first of these shafts is 80 feet deep, the second 65, the third 125, the fourth 130, and the deepest 190 feet in depth. The ore is found in a regular, well-defined seam, and grows richer as it gets further down. At present, with the facilities of the mine to hoist one cord, or ten tons, of mineral per day, the ore can be sold at the mine for $50 a ton; and when the machinery is in full working order, this capacity will probably be increased to four cords daily. Men who have investigated the lode thoroughly, who know the practice of mining intimately, and are known to be men of integrity and veracity, have expressed their utmost faith in the prospects of the company. Their opinions are corroborated by the affidavits of some of the best men of Colorado. The office of the company is at No. 88 Washington street, Chicago.... In another article, after speaking highly of Leonard G. Calkins, Esq., and Henry C. Ballard, Esq.—the former President, the latter Secretary and Treasurer of the company—the same paper says of the mines: "They are sufficiently developed already to show their immense value. They are a portion of the famous 'Illinois lode,' located on 'Quartz Hill,' near Central City, and are proved by assays and all the tests known to scientific and intelligent miners, to abound in the precious metals."

Montana.

The *Post*, Jan. 12th, says: It will be remembered that about two years ago a big stampede was made to Wisconsin Gulch, on the Stinkingwater, some thirty miles from here, and how "ye boys" returned disgusted with the whole thing, and pronounced it a "bilk." It appears that a party having some lingering hopes of success, returned there a short time ago and sunk a shaft six by eight feet to the bed rock, some twenty-four feet. From the pay dirt in this shaft they took $20 of very nice coarse gold, and found the bed rock pitching two feet in the shaft. As there is plenty of water, and the gulch some fifteen rods long, they thought they had "a good enough thing for them," and sent word to their friends by Jack McCourt to "come and get some." It leaked out, as usual, and quite a number of cayuses were headed that way, carrying upon their backs sundry individuals who had the "needful" for securing claims..... Some of the parties on the late stampede to Wisconsin Gulch have returned, having secured a "lay out" in that quarter. They report one hundred and fifty claims taken, and the gulch some four or five miles in length. William Tierman is recorder, and the first Monday in April is designated as representation day. The claims are 400 feet each, horizontally, and from 20 to 30 feet vertically, with the privilege of the next claim of the same dimensions underneath.....At the Summit Bush's mill, on the Lucas lode, they made a clean-up of four and a-half days' run last week, which panned out $850—an average of $30 per ton. Col. Postlewait has taken out of the Kearsarge lode over three hundred tons of quartz. His mill is progressing rapidly toward completion and will be in complete running order inside of a fortnight.....Mr. Hendrie's twenty-stamp quartz mill, located in New York gulch, will commence operations on next Monday. For the present, however, but ten stamps will be used, they being all the owner has now on hand. This will make the second steam quartz mill in operation there, and the confidence thus manifested by the parties owning them speaks volumes for the future of Trout Creek district .... On No. 2 west, on the Whitlatch Union lode, Prof. Hodge, superintendent and agent of the New York gold and silver exploring and mining company, is now working some forty men, is down over one hundred feet and taking out some splendid-looking rock. Whitlatch, on No. 3 west, on the same lode, has about thirty-five men at work "breasting out" on the incline and running the side drifts; they also continue to take out rich ore, judging at least from the last clean-up from Turnley's mill. Work is also being done on some of the other lodes, but by far the greater portion is at present put on the Union. With all of the labor which has already been expended upon this celebrated lode, its vast extent and richness may be said to be as yet not fully understood nor even half developed. The vast masses of ore which lie around, above and about—over your head and under your feet, and on your sides, is something to astonish as well as perplex, and cannot be described so as to give an adequate idea of their immensity, without transgressing our limits.....Judge Turnley's mill has up to the present time made five separate runs, averaging eighty-one tons of rock at each, or a total of four hundred and five tons of ore crushed, which has yielded in round numbers the sum of $26,000, being an average per ton of $64.19, and lacks but a fraction of being the even twenty cents. The last clean-up made from this mill was on last Friday, and was $6,000 from ninety-five tons of ore, or an average per ton of $63.15. These figures speak for themselves.

Arizona.

A correspondent writes to an exchange from Prescott, Dec. 1st.: "And not only Prescott, but several of the mines have 'played out.' You see in this wise: Every one in Arizona is now convinced that our lodes all turn into sulphates, which is a startling discovery to a California, as they are as afraid of sulphates as a dog is of hot water. One year ago a mine that showed sulphated ore was considered worthless, and abandoned altogether, while now one without sulphates is considered worthless. Not because we have mastered the art of working the ore successfully, nor because we prefer, with a dilapidated wallet, a mine of that description to one clear of all base metals, but because 'beggars can't be choosers.' Two years of hard and testing labor has shown us that we have just begun, and in keeping up our work and endeavoring to prove to the world that we have something, we have mainly relied upon our own resources, for but few have yet been induced to take hold that are able to push the thing through, independent of the soon expected proceeds of the mine. Experiment

after experiment, and improvement after improvement instituted in our mills, show us that we have now taken steps in the proper direction, and by watching the progress of older and more experienced mining countries, and by avoiding their failures, and adopting their successes, we will be able to crawl out of the mud."

Idaho.

A correspondent writes from Grantsville, Idaho, Dec. 29th, to an exchange, as follows: Since my last, a new gulch has been discovered by Messrs. Buckhart & Co., who have organized a new district called Webfoot. The gulch is about three miles long, and prospects twelve cents to the pan wherever a hole has been sunk. We have good news from Rapp's gulch. Messrs. Pope, Moore & Co., have washed out of fifteen pans $34,20 of as pretty coarse gold as a man need look at, and out of one hundred and sixty pans of dirt taken off the gravel above the bed rock, got $40, making an average of twenty cents per pan. Among the lucky owners of ground in this gulch are Messrs. J. A. Cook, and R. T. Harris & Co. During the last week gold was discovered in Eureka, above the main creek. The discoverers say it prospects from five to twenty cents through eight feet of gravel.

Minnesota.

A correspondent of the Superior *Gazette* writes from St. Paul: The Report of Eames is not yet published; as soon as a copy can be procured I will forward it. You can say, in advance, he endorses Vermilion; also that he will not be State Geologist again. Candidly, I think Eames is honest in his belief as to the value of the Vermilion district, but public sentiment has not endorsed him, and will not until overwhelming evidence is adduced in support of its richness.

New Mexico.

F. Maülen writes from Taos, New Mexico, Jan. 11th, to the Denver *News*, as follows: The prospects for mining around Taos are very good. We have now here two miners, returned from Montana this fall Eugene Litelfier and Gabriel Parrot, who have been prospecting in the mountains, near Taos, and arroya Honda. They washed gold in several placés, and got as high as ten cents to the pan. There is no doubt that our mines will pay rich. The only thing we need here is an industrious population. Messrs. Parrot & Litellier washed only the dirt taken from the surface. We will commence to operate here early in the spring, about March, and hope to see from your Territory good practical miners here.

Canada.

TORONTO, Feb. 18, 1867.

EDITOR JOURNAL OF MINING:

SIR—With regard to the Madoc gold regions the excitement is greatly on the increase, and new discoveries of gold are being constantly reported, although the depth of snow in that district at this season of the year greatly interferes with the prospecting. T. D

A telegram from Port Hope, Feb. 11, says: A rich specimen of gold was shown here to-day by a gentleman of undoubted respectability, who discovered it while his men were excavating some rock in the township of Harvey, east of Bocaygeon, and it is his belief that so soon as the snow melts gold will be found in paying quantities.....The Victoria *Warder* has been shown a small sample of pure gold, which is stated to have been obtained on the Bobcaygeon road, near Gull lake. It was quite pure and unmixed with quartz, having the appearance of dust washed from sand or broken quartz. The quantity was very small, but it is valuable as proving beyond a doubt that gold really exists in the townships north of Lindsay..... The Belleville *Intelligencer* says: There is nothing of very great importance to report from the gold region, Prospecting to a considerable extent is still carried on, and gold is reported to have been found in several more places in the back country. In Tudor and in the vicinity of the Sordan, gold is said to have been found both in quartz and in placer diggings. Specimens of quartz from Belmont were brought to Bellemont last week, and from two pounds of rock which was crushed, one pennyweight of gold was extracted. If the indications in this last mentioned locality turn out to be as favorable as anticipated, and as the developments already promise, we have another mine equally as rich as that of Richardson's. The Richardson mine is still in the hands of the lawyers, and until the Chancery suit decides who are the purchasers, no effort will be made to work it. A few weeks more, and thousands of gold seekers will be prospecting in the back townships, and then we will know somewhat of the extent and value of the gold deposits in the new Eldorado..... The Kingston *News* reports that gold has been discovered in the townships of Loughboro and Sydenham. Specimens of the gold were taken to Kingston, and were pronounced very fine samples of native gold. Companies have been formed for the purpose of exploring and mining in the spring.....Mr. Henry Bawbell, a resident near Salmon lake, in the township of Limerick, next to the township of Madoc, writes to an exchange: Being in the gold region, perhaps a few words about it would be acceptable. The mania has reached this place, thirty miles from Madoc. Old miners from Pike's Peak and other places were working some weeks this fall on the farm of Mr. Kempt, in Cashel (the next town east of Limerick,) and found the ore in sufficient quantities to induce them to return in the spring. They worked the mine at their own cost, the owner to have a share in it if successful. Others are doing the same in Tudor, and a company will commence operations here in the woods near Salmon lake as soon as the weather permits; having seen indications which induce them to do so. The settlers are providing accommodations for the large influx of people expected in the spring, when I fancy we shall have a stirring time of it, as I cannot think that old miners will go so zealously into the work without being pretty certain of success.....A Montreal letter in the Madoc *Mercury* says: The report of Mons. Michel upon the gold mines of North Hastings has been sent in. It appears he visited eleven of the principal openings in Elzevir and Madoc, and that in five of them he found traces of gold. Those of Mr. Robert Barry in Elzevir, and of Mr. Dugan in Madoc, are reported as presenting gold-bearing quartz. The quartz veins on the Plato farm are also alluded to. The Richardson mine is reported very rich. The whole district is favorably spoken of as gold-bearing, so far as the season of the year would allow him to judge. He does not think much of the skill displayed in mining for the precious article. His report is favorable towards further exploration, in fact it will be a greater encouragement for the further investment of capital than anything that has yet appeared on the subject.....The Peterboro *Review* says: We have been shown by Mr. Lucas Reeve, of Dysart, a rich specimen of gold embedded in quartz, broken off from a surface rock, which is said to have been found in that township by Edwin Pockett, about four months ago. There are rumors of similar discoveries in Harvey and other new townships, so that on the opening of spring a good deal of prospecting may be expected throughout our back country ....The Lindsay *Advocate*, Feb. 2, says: We were shown this morning by Mr. Gregory, druggist, of this town, a small sample of pure gold, which is stated to have been obtained on the Bocaygeon road, near Gull lake. It was quite pure and unmixed with quartz, having the appearance of dust washed from sand or broken quartz. The quantity was very small, but is valuable, as proving beyond a doubt that gold really exists in the townships north of Lindsay. We have rumors, constantly increasing in frequency, that the precious metal has been found in considerable abundance in the township of Haliburton, as well as in the surrounding districts. We may mention that there is little doubt of the locality in which the dust was found. Mr. Gregory received it direct from the hands of Mr. Joseph Grahame, Crown Land Agent, Bocaygeon, who states that he knows the lot and concession where it was gotten, but refuses to give more precise information.....We learn, says the Peterborough *Review*, that the line of route for the new railway from the head of the Trent narrows to the ore-bed on the western shore of Crow lake is now in great part staked out, and tenders asked for its construction. The entire distance will be about eight miles, in almost a straight direction, and over comparatively level ground. This is not to be a mere tram road, as was at one time spoken of, but a well built railway, on which one or two locomotives are to be placed to transport the ore to the head of the narrows, where it will be dumped directly into scows in waiting to receive it, thus occasioning little or no delay in the handling at that point. J. H. Dumble, Esq., civil engineer, has been along the route with a staff of men engaged in locating it, and the work is expected to be pushed forward as soon as spring opens. The ore-bed, which is of great extent, is five or six miles from the village of Marmora, in a northwesterly direction; and as a large staff of men will be employed in getting out the ore, that spot may be expected to become the centre of an important local trade.

Mexico.

The Secretary of the British Legation at the City of Mexico, in a report to his government relative to mining operations in the North-West of Mexico, says: The expense incurred by the North Americans in the various operations undertaken by them connected with the mines of Lower California, is said already to exceed $2,000,000 (about £400,000), the results obtained being in no way commmensurate with so great an outlay, owing, in some degree, to want of experience on the part of those concerned. It is averred, also, that false returns of produce are often made by persons on the spot, for the purpose of causing a fictitious rise in the value of shares in San Francisco and New York, where the offices of the different companies are established. The mining qualifications of the two northermost States of the Mexican Empire, Sonora and Chihuahua, which have lately excited much attention both in the United States and in France, have, in the opinion of a party of English gentlemen, some of whom are professional engineers employed by an English Mining company, who have lately partlally explored the above-mentioned territory, been somewhat overrated.....Correspondence from Durango City, Jan. 14, in the *Herald*, contains interesting information relative mainly to the gold and silver of the State of Durango, which we condense as follows: From the mineral districts to the west and northwest of the city trade began to centre here, and gradually became the most important business centre of the State. The northern and northeastern sections of the State afterwards gave their contributions of mineral riches, and Durango at the end of the eighteenth century began to assume a very important position among the Mexican cities.....Besides the immense mineral wealth that enriched the city, it was the centre of supplies for the numerous cattle *haciendas* that made northern Durango famous for its herds of horses, mules and horned cattle. Scarcely a vestige of these herds now remains; the land lies idle and unproductive; the estates are wrecked; the buildings upon them, deserted or in ruins, afford but a sad shelter to a few miserable beings who live in constant dread of the savages. The immense herds that darkened the plains have disappeared as if by magic before the terrible blast of annual Indian invasion. The districts of Mapina, Inde, Al Oro, Cindo Senores, San Juan del Rio and Cuencame, count their losses from the Comanche and Apache invasions by millions of dollars, while the valuable mining interests of these same districts (one half of the State) are completely paralyzed. The El Oro district is rich in gold washings, and large lumps have been found there. From the California miners who have visited it, I learn that its riches are equal to the most famous diggings of that State, but they cannot be worked on account of a few hundred Indians. .....Lead is very abundant in the State, and copper in the Mapimi district. In Mapina, Cuencame, Guanacevi, Parrilli, and in the Cordillera separating Durango from Sinaloa, there are immense argentiferous deposits. West of the capital, in the suburbs, there are tin mines in the Cerro de los Remedios. There are also valuable tin deposits thirty leagues northwest of this city. The lack of enterprise, capital and protection causes all these riches to lie dormant.....A letter from Hermosilla, in the State of Sonora, Mexico, says: Evidences of great mineral wealth are also numerous in Sonora. Many mines have apparently been worked long and successfully. As an example of one, I cite the lode called the Sante Teresa, in the Santa Rosalia mountain, a short distance from Hermosilla, and owned by ex-Governor Gandara. This mine has been very extensively worked; and, although it has been abandoned for several years, the dritts, tunnels, and shafts are in a fine state of preservation. At one time there were more than three hundred persons at work in the claim in the various occupations of drifting, packing, grinding, smelting, etc.; and it is asserted by those who had means of knowing that, in the five years of its greatest prosperity, the mine yielded over a million of dollars, at a cost of no more than fifty thousaad. Much of the ore assayed from ten to twelve pounds of silver to the ton; and the *gambusinos*, who now work the best portions, when "hard up," and only make $5 per day to the man with poor tools and the common arastra. Gold has also been discovered in large quantities; but placer digging has not of late been profitable. Such a country should be among the most wealthy on the globe; but, alas! for its progress, the inhabitants are of the most imbecile and brainless species imaginable. So abject are they in their poverty and wretchedness that no hope can be entertained for their amelioration, and, as before stated, not until an entire change is made throughout the State of people, customs and laws, will Sonora take her proper place in the catalogue of agricultural and mining countries .....Pesquera, the present Governor, understands this fact thoroughly, and, as an intelligent man, is desirous of encouraging immigration. In this, however, he is opposed by the natives, and thus at present the matter stands.

Honduras.

A correspondent writes to the *Herald* from San Pedro Ursula, Honduras, Dec. 1st, as follows: A few months ago a company of eight Americans visited this country for the purpose of gold mining, bringing with them everything necessary for hydraulic operations, as their intentions were to work especially in that line. They examined and prospected the most celebrated localities, and finally arrived at Moran bar, on the river Guayape, having followed its source to the said bar. Here the work is river washing. The prospects over all the bar is fair. The water is four feet deep, with considerable of a current, and the prospect from eight to twelve cents to the pan. I am confident that if the river was properly worked, under or by practical miners, it would pay at least one ounce, or sixteen dollars, to the man per day. The party were well pleased with the diggings, and concluded to commence as soon as possible to work it; but ascertaining from the natives that it was the commencement of the rainy season, and that for six months it would be impossible to do anything, a damper was put on all their calculations .....The President, who has been residing at Gracias, the capital of the department of that name, for some time, has been extensively engaged in opal mining, and the report is that he has sent five or six thousand dollars worth of first class opals to London .....There has been a mining engineer from England, travelling through the country, examining the greater part of the old mines, and looking out for new ones. He has discovered thirty opal mines so far; and is now on his way home to fit out the miners with

all the necessaries and implements required. The company is a rich one, and they intend to work the mines in the most approved manner, regardless of cost.

British Columbia.

A telegram from Quesnelle to New Westminster, Jan. 11th, runs thus: The Cariboo *Sentinel* says the frost of last week stopped many of the claims from being worked. The Heron company's claim is still paying largely. For the two weeks ending December 22d it paid $950 per share, dividend. The Union company has stopped work for want of water. Nearly all the claims above Richfield are paying over expenses. The Dutch Bill company paid fifty-six ounces last week. The Welch company took out last week about three hundred ounces. The Bed Rock Drain company have begun work again. The Discovery company's mine, on Grouse Creek, is paying largely again. No new strikes are reported.

COPPER.

Michigan.

The Portage Lake *Gazette*, Jan. 31st, says: At the Kearsage the place of explorative workings has been changed, and it is confidently expected the conglomerate will be found within two weeks.....About the 10th or 12th of December, it was telegraphed to Boston that the Calumet conglomerate "had been cut in two places and found rich." It had not been cut this week Tuesday, the 29th; so somebody must have lied outright.....Last week in speaking of the last discovery of "still richer" at the Calumet, we inadvertly said it was found near the Frontignac. Our idea was, it was found nearer the Frontignac than the regular workings on the Calumet. The actual distance from the Frontignac of the new discovery is, in round numbers, seventeen hundred feet.....We saw this week a fine large piece of spar from the Adams traverse, and on one end was a portion of a vug containing a splendid large semi-transparent lime crystal. We like to see these good signs of heavy copper, and hope soon to chronicle the discovery of a big mass. The specimen is to be presented to the Historical Society.....January 12th, the Hancock Mining company levied an assessment of five dollars per share, after producing three hundred and eighty-six tons of copper in 1866. Where is the necessity of the issue of ninety day drafts to the small force employed there this winter?.....Mr. E. J. Hulbert and others have, for $75,000, purchased six hundred acres of land lying immediately to the west of the original Calumet and Hecla properties, and two corners of which are so near the conglomerate that by sinking a shaft exactly in the corner, vertically to a depth of four hundred and fifty feet in one, and four hundred and fifteen feet in the other, the hanging portion of the belt will be reached. Sinking on the inclination will then be commenced, and about eight inches in length for every foot depth will be gained. At what depth will these mines pay dividends?.....The Ossipee company have between seventeen and eighteen hundred feet of the Calumet conglomerate, which has been opened and found very rich. Other explorations have discovered a rich bed of amygdaloid, carrying copper for a width of thirty-five feet. In richness this belt is equal to, if not superior to the South Pewabic. Further explorations are still going on.....During last week a trial of a new furnace for smelting conglomerate was made at the smelting works, under the sole superintendence of the chemist, etc., to the Huron Mining company, Mr. Heberlin we believe, he spells his name, and after a sixty hours' trial resulted in a failure. We said a new furnace, but mean new here, as it is known in Europe as the Mansfield, or hearth furnace. In the trial about one ton of conglomerate, one ton of lime, ten tons of coke, and other materials were used, and the first cake drawn off was nearly pure cast iron, the amount of copper taken out being less than a hundred pounds. A careful examination of the slags showed the greater part of the copper was there, and a considerable part of it in clear rock, hardly calcined..... In the Quincy mine, as well as at the Pewabic and Franklin, there has been a change in the locality of the main copper producing shoot, and it is very singular that in these three mines, of varying depth, such a shifting of the wide rich copper courses from south to northward should have occurred at about the same time. It is a phenomenon, which, if closely watched and studied, may yet assist to a more perfect understanding of the laws of metallic deposition in this region, of which our most erudite professors are so profoundly ignorant. The change in the Quincy has been the rapidly growing poorness of the lode in the south half of the mine, or from south of No. 1 shaft, where, in the levels above the tenth, the richest courses of heavy copper were mainly found. Below the tenth level the lode has been growing narrower and poorer, containing scarce anything except ordinary stamp work; but, as was the case in the Pewabic mine, another even better and richer course was cut immediately thereafter, commencing at and a long distance north from No. 4 shaft. The same phenomenon as at the Pewabic, the sudden changing from a narrow, poor lode, to a wide and extraordinarily rich one, is observable in the Quincy, even to the unimportant particulars of distance from a shaft, locality in the mine, width of lode, and height above the sole of the level where the change occurred; all the difference being that in the Quincy it is in the back of the tenth, and in the Pewabic in the back of the fifteenth level. Of the many times we have visited and reported upon the appearance of the Quincy, none have appeared to us so deserving of amplification as the last one, made on Saturday afternoon last. Before we have seen a greater number of copper producing shoots, and in many of them larger pieces of mass work, but we have never seen such a continuous length of good ground in a wide lode, filled so uniformly with very rich stamp and moderate pieces of barrel work, the latter existing in great abundance. The Quincy now ranks as fourth among the deep mines of the country, being opened for a considerable distance on the twelfth level, and a shaft and a winze working down to the thirteenth. The mines deeper than the Quincy are, in their order, the Pewabic, Cliff, and, we believe, the National; the Minnesota, though as deep as the Pewabic, we have not enumerated, for there is no work being done in the lower levels. The difference between the Quincy and National is made by counting the two adit levels of the latter the same as the former. ....From the Ontonagon *Miner*, Jan. 26, we learn that at the National a decided improvement in the favorable character of the vein over the eleventh level at the bottom and east of No. 1 shaft, is reported; a mass of some tons being exposed in the first stope over the level .....The new openings at the Ogima mine look well.

Nevada.

We understand, says the *Eastern Slope*, that important sales of the Peavine mining interests have lately transpired in New York and Boston. A New York company have purchased the Defiance, Sawyer and Occidental, and the Orient Tunnel company's mine on the Great Eastern or Jackson lode, for the aggregate sum of $80,000—currency. The Copper King and Deposite lodes were purchased by a Boston company—represented by Mr. Fessenden, a brother of Senator Fessenden of Maine, for $18,000—coin. As the above meationed mines are all of the second class, it is presumable that the better class in that district will rank with the best in the State. Fessenden & Co. propose to erect a smelting furnace near Lake's Bridge, for the purpose of smelting the lower classes of ores, while the first class of ore from their mines will be shipped to Boston, where the facilities for separating the precious metals from the copper are complete. Mines located near the line of the Central Pacific Railroad, are growing in favor with Eastern capitalists. For this reason we believe the Peavine copper mines will very soon arrive at an eminent degree of prosperity, being the first mines approached by the Central Pacific Railroad in this State.

California.

The Stockton *Independent* says: At the office of C. T. Meader & Co., yesterday, we noticed specimens of copper ore brought from the Newton mine, Amador county, which are said to assay as high as sixty per cent. A large lump of forty per cent. ore, presents all the brilliant hues of a peacock's feather; while the smaller and richer samples much resemble in color the burnished steel spring of a watch. The metallic combination which gives the peculiar yet beautiful color to the ore, we did not ascertain. Mineralogists, particularly metallurgists, who practically comprehend the whole process of separating one metal from another in the ores, would find much to interest them in examining the samples brought from the Newton mine.

Canada.

The Montreal *Gazette* says: The property of the Huntington Mining Company lies in the Township of Bolton, in the Eastern Townships, about eleven miles east from the eastern terminus of the Stanstead, Shefford and Chambly Railroad—that is, about 76 miles east from this city. The mine was first prospected in June of 1865, and subsequently, until the spring of 1866, was worked with a small force. The first carload of ore was shipped to Boston, we believe, in October or November of 1865, with very satisfactory returns. During the last few months, as soon as the mine was sufficiently developed to admit of its being done with prudence, a much larger force has been employed, averaging from seventy to eighty men, and thirty to forty boys and girls, who have produced from two to three hundred tons of ten per cent. average shipping ore per month, not to speak of a large accumulated amount of second quality, or crushing ore, which remains on hand awaiting the operations of the crusher, which will shortly be erected. We are given to understand that there is one very capital and uncommon character to this mine, which is, that the ore taken out from the beginning has been sufficient to pay the current expenses of mining and fitting it for market; and, further, that the stockholders have not been, and are not likely to be, called upon for one farthing for the working of the mine. At the present time the quantity of ore which can be taken out is only limited by the utter impossibility of freighting it to the railroad. In consequence, we are told that the company find it to be a necessity to build in the spring, or procure to be built, a tram road for the conveyance of their ores, when they can manufacture and ship a thousand tons per month if they choose. The main shaft has only been sunk about eighty feet. There are three other shafts and four or five winzes opened which exhibit a quality of ore equal to it, but the principal portion of the mining has been carried on by drifts from the main shaft. Where there were a year ago but three or four log houses, including the company's office, built of the same substantial material, there are now between forty and fifty dwelling houses occupied by the laborers, between twenty and thirty of which are frame buildings, besides the various buildings connected with the mine, to wit, whine house, screen houses, dressing house, digging house, packing house, blacksmith and carpenter's shops, stables, etc., etc. Altogether, judging from the foregoing facts, which we have from a reliable source, and from other information, we believe that this work has been carried on on the true principle of mining and in the most economic manner, and bids fair to show most magnificent results. We hope sincerely that it may.

IRON.

Pennsylvania.

The Pottsville *Standard*, Feb. 16th, says: Last Thursday afternoon Wm. G. Kurtz and L. E. Llewellyn discovered the McGinnes black-band near Lanigan's furnace, at St. Clair, above the Diamond vein. The vein is four feet thick, is much decomposed at the out-crop, but shows the strata or lamination similar to the McGinnes black-band. The point of discovery is one-half north of the McGinnes shaft, and nearly settles the spread of this vein over our red ash region over the Diamond .....We are informed that four different veins of black-band ore have been found in this county, two in the white ash and two in the red ash measures .....J. M. Freck, Esq., has discovered a large vein of iron ore near his colliery at Centralia, Columbia county. A large mass of it is soon to be sent to Pottsville for the inspection of those interested in such matters .....A singular looking red ore was recently found near Mount Carbon. It is in granulated particles, imbedded in decomposed shale. It has not yet been analyzed.....Explorations for iron ore continue, though they have been greatly interfered with by the bad weather.....The *Journal* says:—Now that the snow and ice are disappearing, there will be an opportunity of searching more fully in other sections of the region for the bed of black-band ore, worked at the McGinness shaft. We believe that Messrs. Llewellyn and Kurtz discovered the same bed about a half mile north of the McGinness shaft, near Lanigan's furnace, on the St. Clair property, where it crops out, and is a little over three feet in thickness, as at present indicated. This shows the continuation of the bed. The reason why so few discoveries of this bed have been made in other portions of the region, is that the measures in which it lies are rather barren of coal, and we believe only one cross tunnel has been driven through these measures in this region, and that we learn is above the bed of ore. The only way to make more discoveries is to shaft to it, where it is supposed to exist near the surface, which will take some time.

Missouri.

Iron, says the St. Louis *Dispatch*, has been lavished on our State with a generous hand. It abounds in different portions of Missouri; but the stupendous masses of almost solid iron found in St. Francois, Iron, Phelps and Reynolds counties, dwarf the discoveries of other localities into insignificance. Shepherd Mountain is 660 feet high. The ore, which is magnetic and specular, contains a large percentage of pure iron. The height of Pilot Knob above the Mississippi river is 1,113 feet. Its base, 581 feet from the summit, is 360 acres. The iron is known to extend 440 feet from the surface. The upper section of 141 feet is judged to contain 14,000,000 tons of ore.

Mexico.

A correspondent writes from Durango: A half league north of the city is the famous "Mercado" iron mountain, the elevation of which is seven thousand five hundred feet above the sea and about six hundred feet above the plaza of the city. I rode around it and examined it thoroughly. It is about three miles in circumference and is composed in great part of iron oxide, as I am informed by those who are working the ores. It is a bold, rugged looking mass, black and frowning. The whole mountain is about fifty per cent. of metal, and its analysis varies from forty to sixty-eight per cent. I have some specimens that will certainly give from seventy-five to eighty per cent. It is rather in the form of a vast deposit than a vein, although the axis of deposit is clearly to be traced, and runs nearly east and west. On the northern side the metal appears to be of a purer quality than upon the southern slope. All around the base of the deposit are huge boulders of iron, many of them from twenty to thirty tons in weight. These, loosened by time, have rolled down from the steep sides and crest of the mountain and lie here ready for the smelting furnace when time and patience shove

Mexico into the channels of the world's commerce. Upon the south side of the mountain is a superior quality of building stone, a primitive limestone highly crystalline, while uplifted upon the northern stope of the iron deposit a limestone ridge stretches off to the northeast. On the northern slope of the iron ridge is the entrance to a mine which has been opened and worked for some time. Gold and silver are also found in this mountain, but the yield is very poor. It is also stated that precious stones of considerable value have been taken from some cave near the summit. Upon the bank of the Turral river, six miles distant from the mountain, is an iron manufactory, the machinery of which is worked by water power, a fall of about twelve feet serving for the purpose. To this point the ores of the Mercado mountain are carried, and from them about one hundred tons of iron are annually manufactured. In 1856 they manufactured one hundred and seventy-five tons, but the works are somewhat run down. The proprietor of the works and of a very fine country seat adjacent, was Don Juan Flores, a gentleman whose feudal wealth two years since was one-third part of the State of Durango, consisting of seventeen immense haciendas and forty houses in the city. All this is now confiscated for treason of the owner, who has made himself prominent as an Imperialist. The iron works consist of a large English smelting furnace, a small machine shop and a foundry of equal dimensions, a number of blacksmiths' forges and a primitive trip hammer, as also a small rolling mill, to which two or three puddling furnaces are attached. I saw them roll a few tons of iron; but it was not sufficiently worked, the rolls were very much strained for a want of a better graduation of sizes in the rolling, and the iron, when finished, full of faults, and very rough. It is, however, of exceeding good quality for all purposes requiring very hard, close-grained metal, it being almost like steel. This is, perhaps, due, in part, to the use of charcoal and wood in the manufacture, there being no stone coal available. The wood is brought over the mountains on muleback, a journey of two and a half days. The charcoal costs fifteen cents silver for twenty-five pounds. The iron sells in this market for from twelve to fifteen cents per pound, wholesale, and is preferred to that of foreign importation. A splendid business might be done here with the iron mountain if there was any protection to industry; but as it is now, it would be a losing enterprise for capitalists.

LEAD.

Missouri.

Messrs. Hosmer & Co., says the St. Louis *Dispatch*, have begun to operate their new mines in Christian county, some seven miles southeast of Ozark. The new diggings opened by them are situated on a sixteenth section, and belong to Christian county. They have a lease from the county for ten years. They passed through Springfield *en route* for St. Louis on Saturday last, with some three thousand pounds pig lead from this furnace. There were also several hundred pounds of bar lead brought to Springfield, which was bought by merchants, who pronounce it a better article than that taken from the Granby mines—being softer and more malleable in its nature. The ore contained in this mine is said to be abundant and apparently inexhaustible. It is what the miners call "Float" mineral, from ten to fifteen feet beneath the surface. It is now a well established fact that the lead deposits of Christian and Taney counties, are equal to, if not superior to those of Granby, being richer, or better quality, and easier of access.....Under the active and vigilant search for mineral treasures which is observable in Missouri, new and important discoveries of valuable deposits are being continuously made. Yesterday, we announced the discovery of lead deposits in Christian county, in the southwest, that are said to be not inferior in value and extent to the rich mines of Granby. In Franklin county, a few days ago, a cavern, near Stanton station, was found, which was nearly filled with lead. The Benton county *Index* informs us too that great mineral wealth is coming to light in that county. Major H. R. Melton, an energetic and enterprising citizen, is opening a lead mine in the southern part of the county, which promises rich deposits. He has employed Mr. Starnes, of Ohio, an experienced Wisconsin miner, to assist in developing the same, and he pronounces it as good as any of the Wisconsin mines. The Major has, in this mineral tract, 1,200 acres, and large deposits of lead have been found on all portions of it. His Cole Camp mines have been fully developed, and are pronounced richer than any of the Galena mines. Independent of these, he has several other tracts with lead prospects upon them, which he proposes to develop the coming spring and summer.

Illinois.

The Galena *Gazette*, Feb. 12th, says: We understand that Mr. Joseph Wise, who has been so successful in mining operations in New California, struck a heavy body of mineral last Thursday, from which he raised over 1,000 pounds that afternoon. The discovery was made in an old level which was run in some years ago by Mr. Wise and partners.....A letter from Dunleith says: The Metal Stamping company, some time since, bought Moody's tin shop, but Moody continues at the old place as though nothing had happened, hammering away, rattlety-bang. There is a long "hole in the ground" up near the elevator. Somebody, of a prospective turn, drifted about 160 feet into the bluff. Finding no metal, and plenty of rock, it has been given up as a poor "spec."

SLATE.

Pennsylvania.

A writer in the Luzerne *Union* says: In your issue of the 1st inst. there appears an article on slate, apparently in answer to one published in your paper of Jan. 11th, commenting upon that article in a way that can leave no doubt that the writer was doing his utmost to advertise certain quarries of the Mountain vein "to be found in the vicinity of Danielsville and Little Gap." He says "these veins are larger, lie nearer the surface, are of better quality and can be worked to greater advantage than the Chapman flat veins." It is useless to go into an argument when a person is blind to facts. The best evidences we have of the two veins of which "P" in his article speaks, are at Slatington, which are the best and most popular quarries of the mountain slate, and Chapman's quarry which is the very best specimen of a flat vein. The Franklin quarry at Slatington, which was sold at auction a few weeks ago for $89,000, has a depth only twenty-seven feet with the folio or split standing nearly perpendicular and running into a hill, which necessitates the constant uncovering of an immense amount of earth as you advance in enlarging the quarry, causing an outlay on dead work. The slate from that quarry as well as all the mountain veins, produce both school and roofing slate in the same strata, and it is as easy to find good anthracite coal in a bituminous vein, as it is to find a No. 1 roofing slate in the mountain veins. You can see the quality of the mountain vein by looking at the roof of our court-house, where there is not one square on the whole building but what is more or less broken and turning gray from exposure to the weather. The Chapman vein is down over one hundred and fifty feet, and is producing better slate every day; which shows that even at that depth the Chapman has the advantage of being more extensive than the best quarry of the mountain vein, of some one hundred and twenty-three feet. "P." has never studied ribbons and joints a great deal, when he says the flat veins have none. It is almost impossible to get a single piece of slate from the Chapman, or any flat vein quarry, without them; and as for joints, they run perpendicularly as far down as the slate extends, and are composed of carbonate of lime, making the quarrying of slate a mere trifle of waste material from the effect of blasting. I would only add, look to the roofs of houses that have the mountain slate on and to the buildings covered with flat vein slate. The former looks beautiful, as it has different shades, from a light gray to a dark blue, and will not tire the eye by remaining that dark lead color that the flat vein slate does and always will, for centuries to come.

Wisconsin.

The Superior *Gazette*, Feb. 9th, says: During the past week some parties have reached here who purpose making a practical test of the quality and value of the St. Louis river slates. The party in question is from Wabashaw, Minnesota, and very wisely do not intend any very extensive demonstration, until one or two squares of this article has been mined and presented to the trade in Chicago, we believe. They will quarry on Section 16, fair samples, and carry them through to St. Paul by team, where tests will be made of their value as roofing material; and from where samples will be forwarded to Chicago. The writer has laid before Eastern dealers in this article, selections from the St. Louis river quarries, and they have in every case without any reserve pronounced them equal to any mined in the United States. We hope these gentlemen will be as fortunate as we were in making their selections; and if so, can see no reason why they cannot make a good thing of it for themselves, and thus add to the resources of the country. The supply is inexhaustible, and although the quality varies as to locality, there is sufficient of a prime article to be had there to roof every house in the Mississippi Valley.

COAL.

Pennsylvania.

A Beaver (Pa.) exchange has the following: Mr. John Brittain, of Fallston, in this county, who emigrated to that place several years ago from the Lackawanna district, has been suddenly overtaken by good fortune. Many years ago, he purchased a tract of several hundred acres of mountainous land in the Lockawanna country for a mere trifle, which he abandoned as worthless when he came to this county. He had a small furniture shop in New Brighton, and is surrounded by a large family—his chief wealth until a few days ago, when he found himself the commander of a monied fortune. His Lackawanna mountains, containing an eight-foot vein of anthracite coal, have butted up against a railroad, and fell under the eyes of a company of capitalists. Mr. Brittain was hunted up by the said capitalists, and offered $75,000 for his mountains, or $4 a year and a royalty on the coal, which, it is estimated, will amount to something like about $10,000 per annum. Our poor neighbor of yesterday has accepted the latter proposition, and is to-day one of the monied men of the county.....

Prof. Eli Bowen, of the Pottsville *Standard*, says: The coal trade of the Schuylkill region commenced in 1822, when 1,500 were shipped to Philadelphia over the Schuylkill canal. This work, however, still continued in a bad condition for navigation until, in 1825, it underwent some important repairs. In that year the trade reached 6,500 tons, and in the following one nearly 17,000 tons. In 1827 the production was again doubled, and the shipments from the two regions amounted to more than 60,000 tons. The coal trade had now been thoroughly inaugurated. Hearths, grates and stoves of an improved structure, expressly adapted to the use of anthracite, were everywhere introduced, and its future destiny as a mineral fuel became at once as plain as the noon-day sun.....Within a period of six months from the beginning of the speculative movement (which continued with more or less activity for three years), nearly five millions of dollars had been invested in the coal lands of Schuylkill county. The same tracts which were purchased in 1827 for five hundred dollars, in some instances were sold, in 1829, just before the excitement began to subside, for sixteen thousand; and these figures will indicate the rise and culminating point of the whole movement. Now so far as the lands themselves were concerned, they had really never attained their intrinsic value; but it so happened that before anything could be realized from them, it was necessary to construct improvements, both of a public and private character, to develop their resources. Up to the present moment, more than $75,000,000 have been expended in the railways and canals that convey the coal of the several regions to market; while $10,000,000 additional have been appropriated to works of a local nature, including the machinery to get out the coal.....It then required about the same number of master colliers to produce 100,000 tons as are now engaged in the annual production of 4,000,000 tons.....The wave-like undulations of the strata proceed from north to south, while their strike is from east to west, conformably to the chain of mountains which enclose them. The coal-trough is seventy-five miles in length, including the two terminal forks near the Susquehanna: its width at the broadest place, which is at Pottsville, being nearly five miles. The mountains which bound it rise with considerable abruptness to the height of from six to eight hundred feet, and their rugged peaks afford a splendid view of the whole central basin, which presents a form very similar to an Indian canoe, wide in the center and contracting and rising at both ends. Within this basin are several subordinate ones, which were no doubt produced by the joint and perhaps contemperaneous movement of heat from beneath the measures and of lateral pressure of surrounding agitated waters. In no other way can we satisfactorily account for the extraordinary folding together of strata originally in a soft and plastic condition. Beginning on the Broad Mountain, the northern barrier, we find at least four veins, two of them of enormous thickness, out-cropping along the bed of conglomerate. Dipping with a gentle slope, they rise in the Mine Hill, producing a basin of comparatively shallow depth, and forming the first and second anticlinal axes. All these axes have been more or less degraded by water, thus exposing the veins on both slopes of the saddle, but others bend gracefully over, and often lie at great depths from the surface. It will hence be observed that what are the highest veins on the mountain, in point of fact are the lowest at the synclinal level. In their second downward plunge towards the south, one or two veins are added to the previous number, and it will be seen that a similar successive addition accrues at each axis until, at the final and deepest pitch which they make, no less than thirteen distinct and separate veins of coal have been identified. The veins of the first, second, and third axes are of the white-ash variety; overlying these is a transitory group, called gray or pink ash, and upon these in turn occur the red ash series, some six or eight in number. While the geological structure of the measures is thus complicated and distorted, the process of mining and preparing the coal for market are simple. As the mountains have in many places been worn down to give passage to streams of water, the coal veins are exposed, or hidden only by shallow deposits of detritus. Where the coal exists in a mountain thus degraded, excavations are commenced directly upon the outcrop, and are thence pushed forward through the body of the vein. This is called a "drift" (or adit level), and it is either situated upon the side or at the base of the mountain. As the drift is extended from day to day, the sides and roof are supported by wooden props, being placed three feet apart, and covered with slabs and sticks of wood to

prevent the overhanging coal or wall rock from falling through. A railway is laid down in the mine, over which the coal is drawn out by horses. Having an inclination towards its mouth, the drift drains itself of water without any mechanical assistance. Where the mountain, however, is not cut down so as to afford direct access to the vein, it becomes necessary to drive a tunnel to it through the interposing strata, at the end of which gangways are driven through the vein at right angles from the tunnel. The letter T sufficiently explains the movement; the shaft representing the tunnel, and the beam-line the gangways, extending in both directions through the coal. We believe it was in 1836 that the first mine was sunk below the water-level. Before this time, singular as it may now appear, it was generally thought that the coal did not extend below the base of the mountains. But experience has since demonstrated that not only do the veins pitch down to a great depth "into the bowels of the earth," (often, indeed, to an unknown, if not an impracticable depth.) but that by far the largest portion of the coal exists below .....A correspondent of the *Journal* writes from Scranton, Feb. 8th, as follows: You state in your paper an account of a large product of coal from a single breaker in Ashland, to wit: 145,599 tons in nine months. This is a very large product, and worthy of notice and imitation. Permit me, however to say Scranton never stands second in anything appertaining to coal. We have a breaker within the limits of our city and operated by the Delaware & Hudson Canal Company, that produced the past year (including lost time, being idle at one time two weeks) 207,678 gross tons, and this from a single slope and one pair of the Dickson Breakers, 16 inches in diameter. I challenge Schuylkill county and the world to beat it.

Virginia.

The Lynchburg *News*, Feb. 14th, says: Of all the mineral productions of Virginia that of coal is unquestionably the most valuable and important. The low price of coal as compared with other fuel; the constantly increasing extension of its consumption: the rapid disappearance of forests in the neighborhood, not only of the cities, but of all manufacturing establishments in which steam is used, all these causes combine to render the coal interest more important than any other, except the agricultural. Hence the increasing favor of capitalists; hence the eagerness to invest in coal mining operations which marks the present era; hence the anxiety with which every indication of the presence of this valuable mineral is sought, and the assiduity with which the search is pursued .....We have been in the habit of regarding the coal fields of Virginia as almost equal in productiveness to those of Pennsylvania, and have always assumed that this mineral was as valuable to Virginia as it is to Pennsylvania. We have lately met with some statistics of the trade in the latter State, however, which has disabused us of this belief, and demonstrated how immeasurably we fall short of the Pennsylvanians in this particular.....We have given these statistics mainly for the purpose of demonstrating to our own people the advantages to be derived from the proper development of our own coal deposits. Whether we have in Virginia a deposit of pure anthracite coal in any considerable quantity, is problematical, but that we have semi-anthracites and bituminous coals in large quantities, is a matter that does not admit of doubt. We have been accustomed to regard the collieries of Eastern Virginia, lying in Chesterfield and the adjoining counties, as immense operations, employing large amounts of capital, and furnishing a most lucrative tonnage to the canal and railroad, which transported their products to market. But how insignificant is the interest here as compared with that of Pennsylvania. We believe the largest amount of tonnage of coal which ever passed over the James River & Kanawha Canal in any one year, was about 75,000 tons, furnished by all the adjacent collieries, yet several of the firms in Pennsylvania furnish each three times that amount. With the increasing attention paid to manufactures, there need be no fear that the production of coal in Virginia will ever be in excess of the consumption, and the admitted existence of coal beds in South-western Virginia of fine quality and apparently large quantity, should ensure still greater attention to the development of this most important mineral.....In Virginia, however, the business is yet in its infancy. The mines near Richmond have, it is true, long been worked, but those of South-western Virginia are yet undeveloped. This is especially true of the rich deposits in the Clinch river valley, lying in the counties of Scott, Russell, Wise and Tazewell, which only require an outlet to market, to become at once most valuable and productive. The Virginia and Kentucky railroad penetrates the heart of this coal region, and would afford the necessary transportation if completed. Does not every consideration then, demand the speedy construction of an improvement which would not only command the immense trade of Kentucky, reaching forward to the Ohio and Mississippi rivers, but would also at the same time inevitably stimulate the development of the coal and iron deposits along its line, and enable Virginia to rival Pennsylvania in the extent and value of these omnipotent interests.

Iowa.

A correspondent of the Chicago *Evening Journal* writes from Montana, Boone county, Iowa, Jan. 30: Railroad matters north from Des Moines City have been attracting considerable attention, and the report has frequently appeared in your paper that roads are in a forward condition connecting with the Northwestern at Ames and at a point five miles east of Jefferson up the North Coon, from Des Moines to Fort Dodge. There is a land grant amounting to 240 sections, from the Government to the State of Iowa, to aid in constructing a railroad along the Des Moines valley from Fort Des Moines to Fort Dodge, thence north to the Minnesota line, in the direction of Mankato, in Minnesota. The object in making this grant by the Government, was certainly to secure the great coal fields that crop out along the entire line from Des Moines city to Fort Dodge, and make them available to commerce, and to enable the said Des Moines road to deliver coal north where no coal exists, and in return receive lumber and wheat. A meeting will be held in this city on Saturday, Feb. 10th, at which time a company will be organized and the preliminary steps taken to build said Des Moines and Fort Dodge railroad. The immense coal interest along the line will secure the capital at once. The counties along the line stand ready to grade the road-bed. This road will certainly get the land grant of said 240 sections of land. Coal to the amount of two hundred tons daily is being taken out here now. The wants of the Chicago and Northwestern railroad will increase this amount to six hundred tons daily. The country drawing supplies from this point wants four hundred tons daily, and the Pacific railroad is offering to contract for two hundred and fifty tons per day, making the demand at this point 1 250 tons per day, at, say, $4 50 per ton. Who says we must not and will not have our coal lands made accessible by railroad.

Illinois.

The St. Louis *Dispatch* says: An enterprise has been commenced in this city, consisting of an arrangement between the Western Mining and Manufacturing company and the Missouri Consolidated Mining company, for building a railroad from Chester, Illinois, twelve miles in length, to the well-known coal region of that district, so as to get a supply of the best iron coal in this country for making iron, and reducing the Pilot Knob and Iron Mountain ore to merchantable iron. A tract of 23,000 acres of these Chester coal lands have been purchased. Over 18,000 acres of this bed explorations have been made to such an extent as will show that the most if not the whole of it is underlaid with three stratas of coal, the upper one of which is thirty feet beneath the surface and six feet thick, but with a good limestone roof; the next beneath it seventy-seven feet deep and four and a-half feet thick, and the lowermost one hundred and nineteen feet deep and six feet thick. The coal found in this bed is of remarkable excellence, having less than one per cent. of sulphur, and being free from bitumen. As usual, the lowermost bed furnishes the best coal of the three Its qualities for making iron are unquestionable—it being described equal for such purpose to the Big Muddy coal, and superior to that known as the Briar Hill. With a railroad built to this coal region from the river, and the coal thus made available, we shall commence a strife with Pittsburg that will result in the transfer of the iron interest to the vicinity of St. Louis.

Missouri.

The St. Louis *Dispatch* says: The supplies of coal and iron contiguous to St. Louis are positively stupendous. Goldwin Smith recently alarmed the people of England by the statement that at some day not very remote, their coal mines would be exhausted. No such fate awaits ours. Coal underlies a large portion of Missouri. It has already been discovered in thirty counties. Beds of cannel coal, forty-five feet thick, have been found. There are 160 square miles of coal in St. Louis county. The amount of coal in Cooper county is estimated at 60,000,000 tons. Under every acre of Boone county there is supposed to be at least one thousand dollars' worth of coal. The deposits in the vicinity of Boonville cover an area of two thousand square miles. The strata have a mean thickness of three feet, and are calculated to contain 60,000,000 tons of coal. The amount in Missouri is estimated at 200,000,000,000—a quantity so great that it would require a consumption of 100,000 tons a day, for more than 3,000 years to exhaust it.

Nova Scotia.

An association has just been formed at Halifax, N. S., with the object of promoting Provincial mining interests. As there is more coal imported into the British Provinces from the United States free of duty than there is sent from Nova Scotia, it is evident that a similar tariff to that of the United States would secure an ample market at home for Nova Scotia coal. An agitation will be immediately commenced for reciprocal legislation in this matter.

OIL.

Pennsylvania.

The *Standard* says: A substance resembling petroleum has been found in Swatara. For two months past the water of a spring at that place has been so strongly impregnated with this oil as to be unfit for use. A crowbar was forced down into the ground, and when it was drawn out a small quantity of oil was obtained from the orifice. It burns freely, and appears to be the real petroleum. It is supposed to have been produced by some natural chemical action going on in the mines, and is not supposed to exist in any great quantity.....The *Journal*, alluding to this discovery, says: According to Mr. O'Neill's statement, who seems very much in earnest in the belief that he has "struck oil," the surface of the stream alluded to has for two weeks been coated with an oily substance, leading him to make an investigation by digging, with the result as stated. He says that he collected the oil from the water in the digging by using flannel which, after it had been saturated, he squeezed out. He says that the oil thus collected burned well in a lamp. We may remark that occasionally a thin, whitish fluid, resembling rock oil, has been found in many localities in the coal measures and outside of them, resulting, it is supposed, from the condensing of the hydro-carbon gas as constantly arising through the pores of the earth. At Erie, Pa., a white oil has been found at a depth of about five hundred feet. The well produced about one and two barrels of oil per day, under suction pumps. At some of the bituminous coal mines of England, a white compound is frequently found resembling parafine, and resulting, it is supposed, from the mine gases. In the anthracite coal measures, rock oil may be seen floating on the mine water, but we do not suppose it can possibly exist in valuable quantities.....The Oil City *Monitor*, Feb. 16, says: During the coming spring, when business, which has been so long drooping, revives and times become lively, there will be a great many strangers, men of capital, coming into the oil region to invest their money, for there are plenty of outside capitalists who have faith in the petroleum business, and who are willing to make a venture in it. The advantages of Oil City should be held up to these men in a proper light. We do not look for a great rush of adventurers borne on the wave of speculation, but for a steady, strong revival of business, legitimate business. The speculative era of the oil region has gone by. Whatever business is now done is on the basis of dollars and cents, and not on that of oil bubbles. There will be no more wild cat speculations in the oil region. The growth and progress of this region will now be steady and healthy. There is no part of the United States which at present offers greater inducements to the capitalist than the Venango oil field.

Colorado.

J. F. Stanton, editor of the Denver *Gazette*, writes to his paper as follows: Some time ago a company was formed in Denver for the purpose of exploring and ascertaining the capacity of the canon of Bear Creek for the production of coal oil. A large company was raised, officers appointed, and a steam engine and borer set in motion. A few days ago, in company with some gentlemen of the association, we took a flying trip to the works, and though the weather was very uncomfortable—a snow storm covering everything with its glittering sheen—yet we were enabled by the kindness of W. St. John, Esq., to satisfy our minds that there are fine indications of oil in that vicinity, which only need energy and perseverance to develop into a rich property to the association. The engine and works are situated on the bank of Bear Creek about half a mile below Mr. R. Morrison's Ranch, who has been known so long and so favorably to the citizens of Denver. The rich deposits of gypsum and of fire clay, setting aside the coal oil indications, are destined at some future day to form a very important adjunct to the mechanical arts of our Territory. The coal oil company have been rather unfortunate in having their derrick blown down on two occasions and entirely destroyed by hurricanes, which swept down the canon, the extent of which can only be appreciated by viewing the debris and wreck which is strewn around in every direction. They expect to be able in a few days to obtain a new set of timbers, and a ain get to work on the borer. They have already bored about ten feet below the surface. If they are successful, and there is every probability that they will be, in finding oil, the immense value of the material, so close to Denver, and the centres of consumption in the Territory, can scarcely be estimated. It has been a well-established fact that very extensive beds of coal underlie that region of country, and it needs only persevering energy to search for it for coal oil to be found in great abundance. We are informed that the indications are as strong where they are now boring as they ever were at the far-famed Oil Creek in Pennsylvania.

☞ A San Francisco paper says: "It is reported that Dr Veatch has got up a concentrator which will run through six tons of tailings in twenty-four hours, requires no attention, and will cost only thirty dollars."

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[ILLUSTRATED.]

GEORGE FRANCIS DAWSON,
EDITOR

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NEW YORK, SATURDAY, FEBRUARY 22.

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THE PARIS EXPOSITION—MORE "BRAINS" WANTED ON THE COMMISSION—SUGGESTIONS

Some thirty Commissioners—said to be at present engaged at Washington in wrangling as to rank and authority—have been appointed to represent the United States at the Paris Exposition. The plan, we believe, is that ten of these thirty Commissioners are to be paid, and twenty occupy an honorary position; and the following is the most complete list of those appointed that we have been able to find:

PAID SCIENTIFIC COMMISSION.

Louis Agassiz of Massachusetts; Jas. H. Bower of Illinois; Henry d'Aligny of Wisconsin; Wm. Slade of Ohio; Henry Fuiling of Oregon; John P. Kennedy of Maryland; Samuel B. Ruggles of New York; J. Lawrence Smith of Tennessee; J. P. Lesley of Pennsylvania; and F. A. P. Bernard of New York.

HONORARY COMMISSION.

A. T. Stewart, J. H. Alexander, J. R. Freeze, R. G. Peterson, Chas. B. Norton, John W. Ginnis, W. J. Valentine, J. Hervey Jones, Wm. A. Adams; Frank Leslie, Dr. Thos. W. Evans, J. G. Usher, J. P. Reynolds, S. H. Wales, John G. Butler, Jno. C. Wilstead, P. T. Barnum, A. Shaffer, Henry Dussauce.

Now, exclusive of Prof. Agassiz (said to have declined to serve), President Barnard of Columbia College, and Samuel B. Ruggles, the statistician, who are these persons appointed to represent this country as paid Commissioners? With the exception of John P. Kennedy, who we believe was once Secretary of the Navy, and a passable novelist, none of them are men of National prominence. We never before heard of them. In the Honorary Commission the names of Prof. Dussauce and S. H. Wales are the only ones at all familiar to us as connected with either Science or Art. Mr. Usher, we believe, has been connected with the Department of the Interior; Mr. Stewart is a famous and wealthy dry goods merchant; Mr. Frank Leslie is a pictorial magazine publisher; Mr. Barnum is a showman, generally known as "the Prince of Humbugs;" and all the rest are, we believe, unknown to fame—truly a motley assemblage! Now, if such men as these go to Paris to represent us, the Commissioners of other nations will feel insulted, and doubtless the French Commission will refuse to hold intercourse with them. It is an outrage, a libel upon American Science and Art, to send such Commissioners. The other Great Powers of the world content themselves by sending two or three Commissioners—why should not we? At any rate, if it is thought necessary to have a large commission, then let the ten paid Commissioners be the ablest, most noted men in the land—men who can meet the great ones of Europe on equal ground—men to whom we can point with pride and say: "Here are some of the *brains* of America, beat them if you can." Then, for the Honorary Commission, why not appoint on it none but those who have already been selected by the respective States and Territories to represent them—one each? This would secure for them a recognition by the Imperial Commission, which otherwise they would fail to receive. The vast importance to us of a fair representation at this Exposition of our vast resources—whether mineral, agricultural or manufacturing—cannot be overrated. It should run our Five-twenties up to par; still farther increase the emigration movement to these shores; bring hither European capital in still larger quantities for investment; and thus bring nearer the day when the population, wealth and power of the United States shall eclipse those of combined Europe. To secure such fair representation is part of the duties of the Commissioners. The Exposition is a huge bazaar in which are many sample shops—each showman striving to attract the greatest share of attention to his shop. We want of course to centre all the World's attention on the country that produces in abundance, and in such excellence, the samples that will be exhibited in the American shop—and to this end we need men who, in assemblages of the learned and in the lecture hall, shall cry these articles, and in the public prints can write them up, and who themselves shall be admirable specimens of Republican manufacture. Let us then, by all means, have the right men in the right place. There are plenty of them; but they cannot be expected to, nor will they, serve with inferior associates.

RIDICULOUS RETURNS FROM THE "MINERS' TAX"—ABOLISH IT!

In the "Report of the Commissioner of Internal Revenue on the operations of the Internal Revenue system for the year ending June 30th, 1866," just printed, we find that the receipts from the $10 tax on miners from the various States were as follows:

California	$6 872 50	Kentucky	$219 17
Pennsylvania	6,613 26	Virginia	185 84
Illinois	2,405 53	Wisconsin	140 00
Ohio	1,617 49	New York	135 00
Missouri	508 66	Vermont	30 00
Michigan	484 17	Tennessee	20 83
W. Virginia	433 35	Massachusetts	20 00
Maryland	380 00	North Carolina	19 17
Indiana	271 67	Mississippi	16 67
Iowa	249 98	Alabama	9 17
New Jersey	236 67	Georgia	2 50

Here we have a total of $20,871.63 collected from miners in the named States, which divided by ten makes the number of miners in those States from whom the $10 tax has been collected only 2,087! Elsewhere in the report the Commissioner states, under the head of occupations, that the "number of persons engaged in eliminating the natural products of mines" in the United States is 158,157. People who "eliminate the natural products of mines" are miners, and if the tax of $10 per head had been collected on all these the total should reach $1,581,570, instead of a beggarly $20,871. Perhaps, however, the difference between the two amounts was the cost of collection, or in other words, that $1,560,679 was expended in order to bring $20,871 into the U. S. Treasury! It is plain enough from the figures given for each State to see that the work of collecting the tax has not been properly attended to. Furthermore it would be interesting to know what Montana and Idaho and the other mining Territories have done or failed to do, that they should be left out in the cold? Why should they be slighted in this manner? Did the law exclude them from its provisions, or are there no collectors under the law hardy enough to attempt its collection? Great are the mysteries of the Treasury Department. This is one of them; Ross Browne is the other. The fact of the matter is that this tax never should have been incorporated into the Revenue Act—*First*, because it is impolitic to tax the men who develop the mineral wealth of this country; and *second*, because, as proven by the above statistics, it is next to impossible to realize any appreciable revenue from such a source. This miners' tax is more trouble than it is worth, and should be abolished.

Death of Prof. Bache.

The recent death of Professor Alexander Dallas Bache has deprived science of one of its brightest lights. He was educated at the West Point Military Academy, where he graduated with the highest honors, and became a Lieutenant of Topographical Engineers in 1825. Two years afterwards he was elected Professor of Mathematics in the University of Pennsylvania, and from that time devoted himself solely to scientific pursuits. He was President of Girard College for five years, and after a visit to Europe, where he studied the principles of systematic education, he matured the system adopted for the Pennsylvania High School. Over twenty years ago he was appointed Superintendent of the United States Coast Survey, and in that position has made himself an eminent name. He was also President of the National Acadamy of Sciences; Vice-President of the American Philosophical Society; Vice-President of the U. S. Sanitary Commission; Foreign Associate of the Royal Society; Regent of the Smithsonian Institute; Member of the Light House Board; of the Board of Coast Fortifications; of the Commission for determining the exterior lines of New York Harbor; of the Association for the Advancement of Science, and of many other learned bodies. His labors have made his name illustrious throughout the whole scientific world, and his loss is deeply mourned.

Work Enough for All.

Since the commencement of this year 11,000 emigrants from Europe have arrived here. Small wages, uncertain work, and "bad times" generally have driven most of them to this Land of Promise. It may be that some few of them, finding it no easy matter to get work in this city, are thinking

of going to Brazil. We trust they will do nothing of the kind. Their free labor cannot compete with that of the Brazilian slaves, and evidence has just reached here that the streets of Rio Janeiro are filled, and the American consulate overrun with those who have been deceived into going thither, and who are now begging for work or help of any description. To all those who are continually arriving hither, and all others in this or other cities on the Atlantic seaboard, who need employment, we say: Don't stop here; move westward; go to the rich mineral and agricultural and manufacturing districts of the West. Go, if you can, to the auriferous and argentiferous regions of the Far-West—to Montana, to California, to Idaho if you will—there you will always find plenty of work at good prices and fair hours, for the willing. This country is big enough, broad enough, rich enough, for a population of one thousand millions.

MEETINGS.

American Flag Gold Mining Co. at 71 Broadway, March 6, 12 M; Perego Gold Mining & Tunnel Co. at 5½ Pine street, March 4, from 12 to 1 o'clock; Americus Oil & Mining Co., of Maryland, at the office of Messrs. Moore & Nichols, 45 Dey street, from 12 to 1 o'clock; George's Creek Coal & Iron Co. at 19 South street, Baltimore, March 11, between 1 and 2 P.M.; Complanter Oil Co. at 524 Walnut street, Philadelphia, March 25, at 12 M; Red Mountain Coal and Improvement Co. at the Wetherell House, Philadelphia, this day at 12 M; California Petroleum Co. at the Continental Hotel, Philadelphia, March 13; N. Y. & Silver Pear Mining Co. at 74 Broadway, March 11.

DIVIDENDS.

American Coal Co., of Alleghany County, Maryland, semi-annual, 3½ per cent. payable March 11th; Central Copper Co., of Michigan, $2.50 per share; Consolidated Petroleum Co. at 19 Broad street, 2 per cent., now due; McElheny Oil Co. at Philadelphia, 2 per cent. on demand.

Scientific Meetings.

Professor Agassiz on the Aquatic and Land Animals of the Amazon.

On last Monday evening Prof. Agassiz delivered in the Cooper Institute, in connection with the Association for the Promotion of Science and Art, the fourth of the course of lectures on the Amazon. It had special reference to the aquatic animals of that great inland sea. He stated that the immense variety of these animals astonished even himself, who had devoted his whole life chiefly to the study of fishes. He wished to impart to his audience the great interest he felt in this subject, and to do this he would explain some of the peculiarities of construction which determined the classification of animals. In the 16th century the greatest naturalists divided all created beings into three classes, Aerial, Terrestial and Aquatic, according to their habitation. This has been found to be an incomplete and inconvenient classification. Modern science has divided animals into four classes, according to the peculiarities of their construction, Radiata, Mollusca, Articulata, Vertebrata. The Professor then entered into a detailed account of the difference existing between each class, calling attention to the wonderful similarity observable between several species, a resemblance which has led many into the erroneous opinion that one species is derived from another. Representatives of all these classes are to be found in the Amazon; two classes of molluscs, two classes of articulates, worms and crustacea, and several of the vertebrates, fishes, reptiles, birds and quadrapeds. The great family of the whales has five representatives in the Amazon. Numerous bivalves, in external structure similar to marine shell-fish, but internally essentially different, inhabit that river. Amongst the fishes proper are the espiredo and polyperdes, of which the alligator is a type. Many fishes are to be found in North America which are unknown in the South, and many again are caught in Africa which are to be got in neither. While we have thus singularly localized forms, there are many of universal distribution, as the cat-fish. It is remarkable that in the Amazon, although the waters are Fahr. 80°, there are so many delicate fish. The Professor then described the various characteristics by which fishes are distinguished, by means of the form of the caudal, ventral, dorsal and abdominal fins. When he went to the Amazon there were known only one hundred and fifty species; he brought back with him close on two thousand. In the remaining portion of his lecture he enumerated and described many of these, amongst which were the sturgeon, swordfish, &c. It is singular that no specimen of the chub, or carp—the commonest fish in our rivers—is to be found in the Amazon. From the fact that the fishes of South America are so different from those of the rest of the world, we must infer either that they were created there or developed in such a way as is perfectly incomprehensible to naturalists.

"The Land Animals of South America" was the title of the lecture Prof. Agassiz delivered on Wednesday evening. Before commencing it he alluded in a touching eulogy to the late Professor Bache, to whom the City of New York had that day paid the last honors. In a long and exhaustive lecture he mentioned the several remarkable animals to be found in South America, commenting on their similarity to and difference from those of other countries. Several animals common in the Old World have no representatives on the South American continent, such as the giraffe, elephant and hippopotamus. We have no lions or tigers, unless the panther and so-called red lion be such. He then resumed his remarks on the various characteristics which distinguish animals, showing how they imperceptibly glide into each other. The wondrous similarity between fins, arms, legs, tails, &c., is said to bear out the idea that one class of animals is developed from another. The same conclusion is derived from ovology. But this is certain, that no animal has been produced from the egg of another species, and from the seed of one plant there has never been known another kind of plant to grow. "Simple as is the plan and idea, the execution is especially a thing which I cannot conceive otherwise than through the intervention of a superior mind."

AMERICAN INSTITUTE—POLYTECHNIC BRANCH.

THE LATE PROFESSOR BACHE—SCIENTIFIC NOTES BY DR. HUNT, OF MONTREAL—FIRE ALARM—MOLECULAR THEORY—BRIDGE BUILDING.

Prof. Tillman, on taking the chair at the meeting of the Polytechnic on Thursday, feelingly alluded to the loss science has sustained in the death of the late Professor Bache, corresponding member of the Institute. He gave a short outline of his life and of his efforts to promote the accurate coast survey of the United States. From the inaugural discourse of Bache, pronounced before the Institute in 1856, Prof. Tillman read an extract vindicating the claims of the country that has produced Franklin, Bache, Hunt, etc., to scientific fame. He then read several notes on various scientific subjects, which had been prepared by Dr. Hunt, of Montreal. They were a synopsis of a course of lectures delivered by that gentleman in the course of last year. In them he reviews the various opinions put forward to explain the constitution of the sun, the direction of the ocean currents, the geological formation of the earth, the origin of mountains, and the final stage of the constitution of the earth in which the porous sides will absorb sea and atmosphere, and leave this planet as denuded as its satellite, the moon. Dr. Hunt is associated with Sir Wm. Logan in the geological survey of Canada, and is widely known as an authority on chemical geology. Although in the service of Great Britain, he is a native of the United States and a graduate of one of our universities. His views were received with marked attention by the Polytechnic. Mr. Dion exhibited a machine by which he maintains that fires can immediately be detected and made known. The principle of this detector is that metals expand under the influence of heat; the expansion of a wire sets free a catch which acts on a spring bell, giving the necessary information of the presence of fire. This machine can be made sensitive enough to detect an increase of temperature as low as the one-sixteenth part of a degree. Mr. Walling read a paper on "Heat being produced by the centrifugal action of atoms." He entered at length into a discussion of the various theories of Boscovitch and Norton concerning molecules. The chief engineer of the Hudson River railroad gave an elaborate and practical lecture on the construction of bridges, directing his observations principally to the bridges of this country.

Correspondence.

[To insure insertion of Correspondence in our columns the full name and address of the writer must be given.]

Prof. Wurtz' Working Experiments with Sodium Amalgam—Big Results from Colorado Sulphurets, etc.

EDITOR JOURNAL OF MINING:

SIR—When I began last Spring to make arrangements for experiments on a working scale with sodium in the milling of ores, I clearly foresaw the uselessness, not to say harmfulness, of distributing sodium amalgam *in small samples*, at random, to gentlemen who, though otherwise skilful and experienced in working ores, had not had opportunity to become practically familiar with the properties of this new and wonderful agent. Nevertheless a number of samples were thus distributed against my judgment. At that time no detailed printed directions, founded on actual experience in working trials, such as may now be had, were yet provided for the guidance of millmen. The natural result was that failures to obtain the benefit anticipated were reported, and have, without doubt, wrought to the detriment of the mining interest in seriously retarding the introduction of sodium into use. The fruits of another slower but surer plan are now being gathered. Millmen of undeniable skill, after being educated into the use of sodium-amalgam in our own laboratory, were entrusted with the material in quantity, to carry on extended and conclusive experiments for a length of time. Among the many important reports now reaching us, the following is particularly interesting, as relating to what is without a doubt the most successful and satisfactory working of *auriferous sulphurets* ever yet accomplished. Mr. Bruce, the writer, is one of the most skilful and experienced amalgamators in Colorado; and is well-known as a man of high conscientiousness. The deliberate testimony of such a man is beyond price. Mr. Bruce has just returned to Colorado, after a few weeks' absence, to continue his successful operations. His address is Black Hawk, Colorado. I wish here to announce that we have now to spare a number of packages of magnetic amalgam for experimental purposes.

HENRY WURTZ, No. 57 Broadway.

New York, Feb. 21, 1867.

NEW YORK CITY, Feb. 14, 1867.

PROF. WURTZ—*My Dear Sir:*

At your request I cheerfully give brief statements of some of the results of my workings with sodium during the past season at my mill in Colorado. I have amalgamated in a twelve stamp mill, two batteries of six stamps each, with copper tables, and sluices below with blankets to catch the sulphurets; also part of the time in an eight stamp mill. Some few of my results have been already reported in letters, and also in statements in the *Black Hawk Mining Journal*. I certify that those statements were true, as well as those published at the same time about the results of Mr. Emory in the Narraganset Mill,* obtained with your sodium amalgam, furnished him by me for trial. I generally charged my quick at the rate of one ounce of your No. 2 Magnetic Amalgams to one pound of quick. I tried more, but then the gold collected on the stamp-heads in the battery instead of the copper plates, which was inconvenient. The increase of yield was great, but the amalgamation quicker. I tried again to amalgamate without sodium, but caught so little gold on the copper tables that after a few days I used sodium again, and have used it for months since, and shall always use it when I can get it. Having heard that statements have been circulated in New York that I reported against the use of sodium, I wish to say that these statements are without foundation, but the precise contrary is true. It has been said also that your amalgam injures the copper, but I have not found it so. I made exact experiments in a Bertola pan on concentrated sulphurets from my blankets, which gave with ordinary quick a bad result, and very little of anything. I showed you the retorted amalgam they obtained from twenty pounds of ore. This

* These reports, Mr. Editor, have already appeared in your columns. That relating to the Narraganset Mill was to the effect that the yield of the ore in an experiment made on a large scale in a battery of twenty stamps was thirty per cent! I wish to suggest here that in most cases such an increase as here stated would be equivalent to an actual *doubling* of the net profits of the operation. H. W.

was ground dry in the pan very fine for about four hours, then wet up with water and about seven pounds new quick, with about two ounces No. 2 Magnetic Amalgam put in and worked for two hours; but much less time for amalgamation with sodium would do, I think. On clearing up there was no loss of quick. The bullion which I showed you has since been assayed at the mint. It weighed one ounce and a half with a fineness of $17.15 gold and twenty cents silver per ounce, being equivalent to a yield from concentrated sulphurets of $2602. 50 per ton of two thousand pounds. Others, to whom I have given samples of sodium-amalgam, have reported favorably; among them I shall mention Mr. Charles Aldridge, at the McIntyre Mill, Spring Gulch. I think it well, from what I hear, to say that I have no interest in sodium-amalgam, either as stockholder, agent or otherwise; but my use of sodium has been from a desire to get at the truth and *thus* benefit myself. I want to add that to my own personal knowledge when they were experimenting with your amalgam at the mill of the Black Hawk Co., they were mining in "cap rock" (very lean ore) and they could not get more gold out than the ore contained. Precisely the same was the case at the Briggs Mill.†

Very truly yours, JOHN C. BRUCE.

† Reference to recent statements in your mining summary will confirm this statement of Mr. Bruce. H. W.

Original Papers.

[WRITTEN FOR THE JOURNAL OF MINING.]

THE NOBLE METALS.

By FRANCIS E. ENGLEHARDT, Ph. Dr. Professor of Chemistry in St. Francis Xavier's College.

CONTINUED FROM PAGE 266.

With the discovery of America a new epoch commences in the history of the noble metals. The former great wealth of the nations of antiquity had gradually decreased in the Old World to such a degree that the amount of precious metals at the end of the 15th century, or rather, at the time of the discovery of America, is estimated to have been only about from £34,000,000 to £37,000,000 sterling, and that the annual production of them equalled the annual loss.

The followers of Columbus, finding gold in the possession of the Indians, were soon seeking for the places from whence it had been drawn; and having found that it mostly had been procured by the washing of the sand of rivers and the soil, they made the natives work at these places, and thus was Hispaniola exhausted of its gold treasure under the Spanish Governors in less than twenty years. The second island discovered was Cuba. In 1511 Diego, Governor of Hispaniola, who observed the exhaustion of the mines in his island, prepared a small force under Don Diego Velasquez, for the conquest of Cuba. The latter, after accomplishing this end, and having become Governor of Cuba, commenced the working of gold mines which appeared to be more promising than those of Hispaniola.

The first ships that returned to Europe brought over only small quantities of gold, mostly in the shape of triukets. Humboldt estimates the value of the gold sent from America to Europe from the year 1492 to 1500 at £52,000 sterling per annum.

Ovando must have shipped in 1502, $350,000. Alonzo de Ojeda, who conquered the nations along the coast of Carthagena, collected from their chief palaces plunder in gold and other valuables to the amount of $237,280. Vasca Nunez de Balboa sent, as a gift for the Spanish monarch, 15,000 crowns in gold. It is moreover related of him that he received from a chief 500 lbs. of gold, and from another and his people 8,000 crowns.

Up to the year 1519 only gold was obtained in the New World. In regard to the production of gold from the year 1500 to the year 1521, or to the conquest of Mexico by Cortez, some authors are of opinion that Humboldt's estimate of £52,000 per annum for the first year may also be taken for this period as a pretty correct statement.

In the first expedition under Hernandez de Cordova, in 1517, the Spaniards found the natives only in possession of some fishes of alloyed gold. In regard to the second expedition, in 1518, under Juan de Grijalva, Bernaldiez del Castillo tells us in his history of the Conquest, that they received at their first landing at the mouth of the river Grijalva (or the Rio Tobasco), from the Indians toys made of gold, in the shape of birds and lizards, and three necklaces of gold cast like beasts, worth about 2,000 crowns. The Indians stated that it "being the whole of the gold that they were able to collect," but they added "that more to the west there was abundance thereof," repeating several times, "Mexico" and "Culua" (Culchua).

At the River Vanderas they obtained 15,000 crowns worth of gold. The entire quantity the Spaniards obtained on their second expedition and brought to Cuba, amounted to 20,000 crowns. The value of the treasure which Cortez and his companions received of Montezuma and his people in the city of Mexico, is estimated by Prescott to have amounted in our money to $6,300,000. Among the many presents of Montezuma to Cortez and his conquerers, were a plate of gold wrought of the size of a carriage wheel representing the sun, and a larger one wrought of silver, representing the moon; besides shields, helmets and cuirasses, embossed with gold plates, collars (two for each soldier), bracelets, imitations of birds and other animals wrought in pure gold and silver, and all of exquisite workmanship. The celebrated hall or secret room which the Spaniards discovered in Cortez's palace in the city of Mexico, contained the treasure of Axayacathe, the father of Montezuma, and so much of gold and silver in bars and ornaments that Bernal Diaz says: "It seemed to me as if all the riches of the world were in the room." Montezuma stated that the richest gold mines were in the province of Zacatula. He also described the method in which it was obtained, namely, by washing the earth, the small grains of the metal sinking to the bottom. The silver and lead the Mexicans drew from the mines at Tlasco, and the copper from the mountains of Zacatollan. Cortez took with him to Spain 200,000 pesos de oro of gold, 1,500 marks of silver and a rich treasure of jewels, among which were emeralds of extraordinary size and lustre. About 30 years after the conquest mines were worked at Pasco, Zultepeque, and Pachua.

[TO BE CONTINUED.]

[TRANSLATED FOR THE JOURNAL OF MINING.]

AMALGAMATION—No. 2.

By J. H. TIEMANN, M. E.

Gellert communicated his experience to Van Born, and new experiments were made in Hungary. Warm amalgamation was replaced by Gellert's cold amalgamation in wooden vessels, but instead of wooden cylinders barrels were used, set horizontally, and instead of agitating the mass by dashers, the barrels proposed by Chief Mining Engineer Ruprecht, were revolved upon their axes, and plates of iron or copper were thrown into the "Quickbrei." [This word is used to designate the mixture of the roasted mass with water in the barrels.] These changes proved to be of the greatest importance in the experiments made *en gros* at the Muldner works at Freiberg, and the erection of large works was commenced at Halsbruck. They were completed on the 1st of April, 1790, by Wittig and Frenzel, under the supervision of Charpentier. On the 17th August, 1792, the whole establishment was destroyed by fire. In two years and a half it was rebuilt more extensively than before. From that time amalgamation in Frieberg yielded most beneficial results. It was the more useful for the reason that the amount of lead ore lessened in proportion to the whole amount of ore mined, and fuel became dearer. It possesses, furthermore, this great advantage, that the silver in the ores is extracted more quickly than by the smelting process; the silver in the latter process being carried about for a long time in the different products. For this reason the loss of silver and the cost of amalgamation is less than in the smelting process; though, on the other hand, it is not to be denied that the smelting works would be more profitable if amalgamation were unknown, as the latter takes off all the easily fusible ore, and nearly all the argentiferous pyrites, and the smelting works are consequently compelled to treat the poorer ores, at an increased cost. The use of this process was not so successful in other countries as in Saxony. Hungary, its birthplace, who had promised herself such a great saving from this process, replaced it, after a few years, by the smelting process, on account of the gold. The amalgamation of copper matt at Brixley, in the Tyrol, was abandoned in 1788, the same was the case with works erected by d'Elhuyar, in Columbia, and the works at Requay and Tallenga, in Peru. Within the last ten or fifteen years attempts have again been made to introduce it. New works have been erected in Hungary; it is now used in Mansfield for the treatment of copper matt; and Russia, who already has small works at Eckatharienberg, is about erecting more.

II. Review of the different amalgamating processes now in use.

The following are the processes now in use:

1. Amalgamating in mortars, troughs or tubs.
2. Amalgamating in mills (pans).
2. American amalgamation in heaps.
4. Amalgamation in kettles.
5. European amalgamation in barrels.
6. The combined European and American amalgamation.

Amalgamation in mortars, troughs or tubs, is used principally for rich gold sand. One part by weight of dressed sand is stirred with a wooden pestel, in one of the above mentioned vessels, with two parts of quicksilver, till it is supposed that all the gold has been taken up by the quicksilver. The latter is then washed to free it from extraneous matter, and passed through a leather bag. The amalgam remains in the bag. This is heated, either over an open fire, by which the quicksilver is lost, or in apparatuses constructed to save the quicksilver. A cylindrical vessel, with a perforated iron or clay cover, is filled with water, the amalgam is placed on the cover, over this is placed an inverted crucible, the edges of the under vessel and crucible are luted with mortar; the whole is then placed in an opening in a hearth just deep enoughto receive the under vessel, and the crucible is surrounded by hot coals, causing the quicksilver to vaporize and pass through the holes in the cover into the water, where it is condensed. In order to keep the water cool, there is provision made for a continuous in and outflow. The distilled quicksilver is washed and passed through a leather bag, when it is again ready for use. The gold which remains on the cover, is carefllly heated on an iron plate, and then smelted in graphite crucibles. The amalgam residue which usually contains some gold, is added to the fresh charge. Amalgamation in mortars, etc., is still used in Hungary, Siebenburgen, Croatia, Buckowina, Bannat, Russia, Portugal, Brazil, Thibet, Australia and California. Amalgamation in mills (pans) is in use at Zillerthal in the Tyrol, Salzburg, Piedmont, etc., for recovering gold from ores, as well as for the recovery of silver and gold, from old coins and other dross, and appears as if in Hungary it would supersede the amalgamation in mortars, etc., as there they recover more gold in mills. The reason of which is, that the ores to be amalgamated in these mortars, must necessarily undergo a previous dressing, thereby causing a mechanical loss of gold. The construction and size of gold mills differ in different places. A description of the various patents in America alone would require a good-sized volume.—Trans.) They are usually made small and low to economize space, they consist of a hollow cast iron cylinder, closed at the bottom and open at the top, with a wooden stirrer which does not completely fill the cylinder, and reaches only deep enough to agitate the quicksilver without touching the bottom. Iron plates are fastened to the underside of the stirrer, set up edgewise, and reaching just below the surface of the quicksilver. The pans stand near the stamps, from which the pulp passes into the first pan, then into the next, etc. From the pans it passes over plates, and then into troughs, where it is allowed to settle, and afterwards smelted. If gold settles on the plates, either the stirrers moved too slowly, or they were not set deep enough in the quicksilver; if quicksilver settles on the plates, either the stirrers were set too deep, or they moved too rapidly. The stirrers should not make more than twelve revolutions in a minute. The American amalgamation in heaps is used in Mexico, Chili, Peru and Bolivia. Most perfect in Mexico, and in Bolivia in the coldest regions. The ores are seldom

roasted, except in one or two places, and only then when they are very pyritous; but they are everywhere ground as fine as possible. The last grinding is generally carried on in wet mills, called arastras. When the ores are auriferous, quicksilver is put in the arastra during grinding, and the gold first extracted. The pulverized ore is taken to the amalgamating yard, and made into heaps of 15, 20, and 32 cwt. These heaps are called "montones," forty or fifty montones constitute a "Torta." The montones must contain a certain amount of water, and are mixed with from 2 to 20 per cent. of salt, depending upon the purity of the latter. Generally a few days after this addition, the so-called incorporation follows, which consists of the trituration of the mass by men, horses or mules; one to six per cent. of "magistral" is then added, (this magistral is a mixture of roasted iron and copper pyrites, allowed to cool slowly.) After this addition the mass is again triturated. After a few days the quicksilver is added. The heap is levelled off, and the quicksilver is spread over the whole in the form of rain, by pressing it through cloth. For each "mark" (8 ounces) of silver, there is usually added at first 1½ pounds quicksilver; the trituration begins again, and is repeated every other day. The condition and temperature of the heap is carefully observed, as it must reach a certain grade or degree, without going beyond it. If the temperature is too high, there is too great a loss of quicksilver; if too low, the extraction of silver is incomplete. The temperature depends entirely upon the quantity of magistral; when there is too much it is neutralized by the addition of lime.

TO BE CONTINUED.

MARKET REVIEW.

FRIDAY EVENING.

Gold and Silver Stocks.—To-day being a holiday, there was no business done at the Stock Exchanges. We therefore give yesterday's quotations, compared with those of last Friday. A considerable variation will be noticed in many Stocks.

	Feb. 15.		Feb. 21.	
	Offered.	Asked.	Offered.	Asked.
Alameda	5 00	....	5 00	5 50
American Flag	1 65	1 75	1 25	1 30
Atlantic and Pacific	....	4 00	2 00	3 00
Ayres' Mill and Mining	....	....	....	....
Bates & Baxter Gold	2 15	2 25	....	2 25
Benton Gold	1 00	1 10	1 05	1 15
Bobtail Gold	....	3 00	....	3 00
Boscobel Silver	2 40	2 50	2 75	3 00
Bullion Consolidated	....	2 50	....	2 50
Burroughs Gold	30	40	....	35
Central Gold	....	35	20	25
Crozier Gold	10	11	10	....
Columbian G. & S.	1 75	1 78	1 80	1 95
Consolidated Colorado	6	15	....	8
Consolidated Gregory	11 80	11 90	12 25	12 50
Corydon	8 75	9 50	10 00	16 00
Des Moines Gold	....	2 50	2 10	2 15
Downieville Gold	....	15	6	12
Gilpin Gold	1 00	3 00	....	3 00
Gold Hill	....	4 80	....	4 00
Gunnell Gold	1 05	1 10	97	1 00
Gunnell Union	50	53	50	55
Grass Valley Gold	....	....	....	....
Hibbard Gold and Copper	....	85	....	....
Holman	15	25	12	....
Hope Gold	50	75	50	70
Keystone Silver	4	5	5	6
Kipp & Buell Gold	....	1 00	45	65
La Crosse Gold	70	1 00	65	1 00
Liebig	....	1 00	50	....
Liberty Gold	7	9	6	9
Mill Creek Gold	8	15	....	....
Montana Gold	45	60	50	90
New York	1 10	1 25	1 00	1 25
Nye Gold	7	9	7	9
Pah Ranagat Central Sil.	....	1 50	....	....
Perry & People's Gold	....	5	....	....
People's G. & S. of Cal	2 00	2 20	1 75	2 00
Quartz Hill	4 50	4 55	4 25	4 25
Reynolds Gold	....	....	12	14
Rocky Mountain Gold	1 30	1 75	1 10	....
Smith & Parmelee Gold	6 75	6 95	6 25	6 60
Sensenderferfer	28 00	28 75	26 25	30 00
Symonds Fork	1 65	1 75	1 65	1 90
Texas Gold	....	....	20	1 00
Yellow Jacket	....	60	....	50

At the first board, yesterday, the following were the sales: Columbian Gold and Silver, 100 shares at $1 93; Consolidated Gregory, 300 at $11 95@12 25; Des Moines 200 at $2 15, and 300 s. same price; Peoples' Gold and Silver, 400 at $1 80; Quartz Hill, 100 s.3 at $4 05, 600 b. $4 10@4 25, and 400 straight at same price; Reynolds Gold, 600 at 12@14c., 1,000 b.3 at 14c. At second call 100 shares of Boscobel brought $3; Columbian Gold and Silver, 700 at $1 93, 200 s.3 $1 93, and 300 b.30 at $2; Consolidated Gregory, 300 at $12 30@12 35, 200 b.3 at $12 30@12 40, and 100 s.3 at $12 35; Gunnell Union 500 at 52c., and 500 s3. at 53c.; Hope Gold, 100 at 50c.; Peoples' Gold and Silver, 100 at $1 80; Quartz Hill, 100 $4 20, 200 s.3 and 300 b.3 ot same figures; Reynolds Gold, 1,000 at 12c. At the second board sales were as follows: 500 shares Benton at $1 10; 500 Columbian Gold and Silver, $1 90@1 95, 200 same b.3 $1 93; 100 Corydon at $12; 100 Consolidated Gregory at $12 75; 200 Des Moines at $2 15; 5,000 Keystone b. 30 at 6c.; 3,000 same s.3 5c.; 1,000 same s.60 same price; 3,000 same b. at 6c.; 200 Peoples' Gold and Silver at $1 80; 800 Quartz Hill at $4 20@4 25, 200 s.3 and 300 b.3 at $4 25; 100 Sensenderfer $27 50. At second call 200 shares of Consolidated Gregory sold at $12 60@12 70, and 100 same s 3 $12 55; 400 Smith & Parmelee at $6 60; 300 Quartz Hill b. 10 $4 35, 300 b.3 and 300 s. at $4 25.

Copper Stocks.	Feb. 16.		Feb. 21.	
	OFFERED.	ASKED.	OFFERED.	ASKED.
Canada	60	1 00	50	1 00
Central	....	....	....	....
Charter Oak	1 00	1 10	1 00	...
Davidson	50	1 00	50	70
Hilton	1 00	3 00	....	....
Huron	....	38 00	1 00	....
Indiana	....	2 25	....	....
Isle Royal	12 00	....	....	....
Ogima	....	2 50	....	....
Quincy	....	....	30 00	....

Lead Stocks.—100 shares of Wallkill sold yesterday at 75c.

Petroleum Stocks.—Show a general advance.

	Feb. 16.		Feb. 21.	
	Offered.	Asked.	Offered.	Asked.
Bennehoff Run	....	3 15	3 05	3 35
Buchanan Farm	20	23	19	22
Central	1 08	1 25	1 05	1 20
Clinton Oil	1 25	1 50	1 60	2 50
Excelsior	....	20	10	18
Manhattan	....	20	....	20
N. Y. and Alleghany	....	4 75	3 50	4 75
Pit Hole Creek	70	75	70	1 00
Rynd Farm	....	20	....	20
United Pet. Farms	10	....	10	....
United States	4 20	4 50	4 05	5 00

300 shares of Clinton sold at $1 60, and 200 Bennehoff Run Pet. $3 05.

Miscellaneous Stocks.—Long Island Peat $4 25; Rutland Marble held at $15 00; 100 shares changing hands at that figure.

Copper.—Quiet. No disposition to do business. Some transactions in Portage at $27.

Iron.—A slight decline in Scotch Pig, which is selling at $43@49; American, $47@50. Wm. Oothout & Co., in Cliff street, report retail prices as follows: Swedish Iron, $162½@172½; common, $102½@107½; refined, $112½@117½; band, $142½; rods, 3-16 to ⅝, $117½@172½; scroll, ⅝ to ⅞, $142@190; horseshoe, $137½@145; hoop, ⅝ to 2, $147½@210; nail rod, 9½@10½c; ovals, ½ to 1½, $137½@147½.

Steel.—No change. Best Cast, 23; Esla, 24½; German, best, 15

Tin.—Plates firm, $13.25@17.25.

Lead.—Steady and firm; 60 tons disposed of at $6.70@6.75.

Spelter.—We quote it firm at from 10 to 11c. Business quiet.

Zinc.—Sheet dull. American sells at 12@13c.

Gunpowder.—$5@5½ per keg.

Quicksilver.—In flasks, 90@95c, in lots, 80@90c.

Salt.—Quiet but firm. Turk's Island, 65c.

Candles.—Adamantine dull at 21½@22c.

Petroleum.—Crude was in moderate request at about former prices. A sale was made of 200 bbls., 40@49 gravity, at 17¾c in prime new packages. Bonded was in moderate request at steady prices. Sales, 1,000 bbls. at 29½c for standard white, and 28½c for prime light straw to white. In Philadelphia a fair business was done, the sales comprising, beyond those reported yesterday, 2,000 bbls. standard white for March, 28c, buyers' option, 1,000 do. prime light straw to white for June at 30c, buyers' option; 1,500 bbls. standard white for April, May and June, 1,000 do. for August, 1,000 do. for October and 1,000 do. for Septmeber, buyers' option on private terms.

THE SLATE TRADE.

We have nothing new to report this week; prices remain unchanged.

Roofing Slate.

Vermont	purple,	1st	quality,	per *square	$11 50@12 50
"	"	2d	"	"	10 50@11 50
"	green,	1st	"	"	12 00@13 50
"	"	2d	"	"	11 00@12 00
"	red,	1st	"	"	13 00@14 00
"	"	2d	"	"	12 00@13 00
Pa. bl'k & d'k blue,		1st	"	"	11 00@12 00
"	"	2d	"	"	10 00@11 00

PRICES DELIVERED.

PER SQUARE.

CHICAGO.—Vermont	purple and green,		1st qual.		$14 50@15 50
"	"	"	"	2d "	13 50@14 50
"	"	red	"	1st "	15 50@16 50
"	"	"	"	2d "	14 50@15 50
"	Penn. black	"	"	1st "	16 00@17 00
"	"	"	"	2d "	15 00@16 00

BUFFALO.—$2 or $3 lower than Chicago.
CLEVELAND.—$1 higher than Buffalo.
CINCINNATI.—50 cents higher than Cleveland.
NEW ORLEANS.—$19@20 per square.
CHARLESTON, S. C.—$16@16 per square.

* The term "square" represents 100 superficial feet.

THE BOSTON SLATE MARKET.

REPORTED BY A. WILBUR & CO., 112 TREMONT STREET.

Roofing Slate.

BOSTON, Feb. 14, 1867.

Welsh,	1st quality	$12 50@13 00
Penn.	1st do	10 00@11 50
Purple,	1st do	9 50@11 00
Green,	1st do	9 50@11 00

THE COAL TRADE.

NEW YORK, Feb. 22, 1867.

Wholesale.—Confidence has manifested itself in Coal circles since the "great sale," and buyers are coming forward freely. The last few days of stormy weather have, however, caused a temporary stoppage, but taking the market generally, a better feeling prevails, and dealers are about making contracts for their spring and summer supply. Our reports from the various regions are not very encouraging. There is very little doing in the Schuylkill, Lehigh and Hazleton regions, the laborers still refusing to go to work at the reduced rates offered by operators. The ice in the Delaware is broken up, and there are a few boats loading at Port Richmond. We hear of no shipments, however. We no doubt will be able to publish the tolls and freights over the various routes of transport next week, and if they are correspondingly low with the rates Coal has brought in this city during the past few months, we may expect to hear of increased activity in all branches of the trade. It is to be hoped that a deaf ear will not be turned to our remarks in this respect, as it is the only salvation of the Schuylkill interest so largely represented here.

Foreign.—There is very little offered in the market, and prices rule at our quotations.

Provincial.—The trade remains dormant during the ice blockade, and very little is doing with stock in hand. Prices are firm.

Retail.—Dealers are working steadily, and stocks in hand are being reduced, but little has been purchased by them during the past three months. They will, however, soon have to come in the market to replenish, as many have scarcely a respectable stock to deliver orders from. Prices range from $6 50 to $8 50 for the various sizes and qualities.

The following is the quantity of Coal shipped over the principal Roads for the week ending Feb. 16, 1867.

	1866.		1867.		
	WEEK.	TOTAL.	WEEK.	TOTAL.	DECR'SE
Phil. & Reading R.R.	....	.....	29,696	336,540	.....
Schuylkill Canal	....	.....	.....	.....	.....
Lehigh Val. R. R.	30,791	287,685	28,699	193,176	d 94,509
Lehigh Canal	....	.....	.....	.....	.....
Del & Hudson	.....	.....	.....	.....	.....
Scranton North	5,826	43,031	6,697	39,640	d 3,391
Scranton South	12,139	89,496	22,990	133,745	i 43,749
Penn'a. Coal Co. Rail by Canal	.....	.....	.....	.....	.....
Wyoming North	.....	.....	.....	.....	.....
Wyoming South	.....	.....	.....	.....	.....
Shamokin	2,840	32,043	6,067	29,400	d 2,943
Trevorton	904	3,851	916	31,008	d 751
Short Mountain	605	3,028	437	2,483	d 545
Franklin	.....	.....	.....	.....	.....
Broad Top	.....	18,207	3,380	20,087	.....
Total 1866	52,535	504,841	98,882	786,071	.....
Corresp'ng time 1867	.....	786,071	.....	.....	.....
Decrease	.....	281,230	.....	.....	.....

Schuylkill Coal Trade.

BY RAILROAD, FOR WEEK ENDING FEBRUARY 19, 1867.

St. Clair	1,212
Port Carbon	3,315
Pottsville	90
Schuylkill Haven	12,348
Auburn	859
Port Clinton	11,872
Total for week	29,696
Previously this year	307,676
Total	337,372

Lehigh and Mahanoy Coal Trade,

For week ending February 16, 1867.

NAMES OF SHIPPERS.	WEEK	TOTAL.
Trenton Coal Co	20 16	314 16
Mount Etna	.....	43 04
Mahanoy Coal Co	.....	.....
Delano Colliery	1,388 09	10,255 03
Glendon Coal Co	440 11	572 05
Rathburn, Stearns & Co	936 11	5,538 09
E. S. Silliman	2,258 01	17,334 11
McNeal Coal & Iron Co	739 11	5,980 09
Knickerbocker Coal Co	1,831 11	7,727 15
Thomas Coal Co	366 00	2,624 10
Williams & Herring	280 18	1,574 11
Other shippers	.....	10 02
Total	8,262 08	51,976 05
Corresponding week last year	5,917 10	42,477 11
Increase	2,344 18	9,498 14
Decrease	.....	.....

Report of Coal

Transported over the Lehigh Valley Railroad, Week ending Saturday, February 16, 1867.

Where Shipped from.	Week. Tons. cwt.	Previously. Tons. cwt.	Total. Tons. cwt.
MAHANOY REGION.			
Trenton Coal Company	20 16	293 15	314 11
Mount Etna Coal Company	....	58 07	58 07
Mahanoy	....	....	....
Delano	1,399 12	8,447 14	9,847 06
Glendon Coal Company	317 12	131 14	449 06
Rathbun, Stearns & Co	838 10	4,502 08	5,340 18
E. S. Silliman	2,205 05	14,773 10	16,978 15
McNeal Company	1,054 16	5,202 00	6,256 16
Knickerbocker	1,860 18	5,480 19	7,341 17
Thomas Coal Co	366 00	2,434 15	2,800 15
Williams & Herring	276 00	1,308 04	1,584 04
New Boston C. Co	....	....	....
Shamokin Coal Company	....	....	....
East Boston C. Co	....	505 14	505 14
Other shippers	....	85 02	85 02
Total Mahanoy	8,359 09	43,324 02	51,683 11
WYOMING REGION.			
Baltimore Coal Company	647 01	10,214 14	10,861 15
Franklin Coal Company	648 18	2,070 06	2,719 04
Audenreid	193 00	883 17	1,076 17
Lehigh & Susquehannah	572 07	2,869 10	3,441 17
Gerrian a Company	298 17	3,567 02	3,865 19
Wilkesbarre Coal and Iron Co	3,040 16	9,028 12	12,069 08
Warrior Run	147 16	1,395 06	1,543 02
Parish & Thomas	794 18	7,759 05	8,554 03
New Jersey	342 16	3,066 11	3,409 07
Union	305 06	2,101 19	2,407 05
Wyoming Coal & Trans. Co	434 17	5,897 04	6,332 01
New Port C. Co	....	....	2,086 00
Morris and Essex Mutual	....	2,086 00	....
Consumers	....	....	....
Everhart C. Co	....	....	....
Plymouth C Co	....	....	....
Hillman & Son	205 06	1,793 13	1,998 19
Bowkley, Price & Co	131 17	165 06	297 03
Other Shippers	....	....	....
Total Wyoming	7,763 15	52,899 05	60,663 00

HAZLETON REGION.			
Central Coal Company	....	....	....
Ashburton Coal Company	....	....	....
Mount Pleasant	....	284 13	284 13
Hazleton	10 00	7,206 04	7,216 04
East Sugar Loaf	....	851 05	851 05
Woodside Company	....	....	....
A. Pardee, Jr., Bro. & Co.	....	....	....
Stout Coal Company	....	548 10	548 10
Harleigh	....	415 18	415 18
Ebervale Coal Company	....	1,630 01	1,630 01
Jeddo (G. B. M. & Co.)	67 00	2,281 04	2,348 04
Jeddo C. Co.	....	....	....
Highland Coal Company	....	....	....
Cross Creek	....	929 18	929 18
Council Ridge	....	2,755 05	2,755 05
Buck Mountain	....	603 02	603 02
Other Shippers	....	....	....
Total Hazleton	77 00	17,506 00	17,583 00
B. M. REGION.			
New York & Lehigh	3,636 17	12,991 14	16,628 11
Honey Brook Coal Company	4,375 12	17,801 07	22,176 19
Ger Pa Coal Company	165 16	6,449 18	6,615 14
Spring Mountain	2,857 02	3,801 02	6,658 04
Coleraine	1,433 05	9,012 03	10,445 08
B. Meadow. (D. W.)	....	58 06	58 06
John Connery	30 09	600 02	630 11
Lehigh Zinc Company	....	....	....
Other Shippers	....	33 00	33 00
Total B. M. Region	12,499 01	50,747 12	63,246 13
Total Hazleton	77 00	17,506 00	17,583 00
Total Wyoming	7,793 15	52,899 05	60,693 00
Total Mahanoy	8,359 09	43,324 02	51,683 11
Total	28,699 05	164,476 19	193,176 04
Cor. week last year	30,191 12	257,493 15	287,685 07
Increase	....	....	....
Decrease	1,492 07	93,016 16	94,509 03
Coal delivered at M. Chunk and forwarded by rail	28,699 05	164,476 19	193,176 04
Coal delivered on line of P Haven and W. Haven R. R	....	89 16	89 16
At Junction, for shipment by canal	4 18	84 08	89 06
At Mauch Chunk	39 15	10 06	50 01
At Mauch Chunk for shipment by canal	....	....	....
Grand Total	28,743 18	164,661 09	193,405 07
Cor. week last year	30,191 12	257,493 15	287,685 07
Increase	....	....	....
Decrease	1,447 14	92,832 06	94,280 00

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

At New York, Feb 22, 1867.

Schuylkill Red Ash by Boat Load	$7 00@	$7 50
" Chestnut, " "	4 50	5 25
" White Ash Lump	6 25	6 75
" Steamboat	6 25	6 75
" Broken	6 25	7 00
" Egg	6 50	7 00
" Stove	6 50	7 00
" Chestnut	4 75	5 50
Lehigh White Ash Lump	6 50	7 00
" Broken	6 50	....
" Egg	6 25	....
" Stove	6 75	....
" Chestnut	5 50	....
Despard Gas Coal	10 00	....
Westmoreland Gas Coal	10 00	..
Blossburg & Fall Creek	7 25	7 40

At Philadelphia, Feb. 22, 1867.

Schuylkill Red Ash Prepared	$5 50@	$6 00
" Chestnut	4 00	.. ..
" White Ash Lump and Steamboat	5 25	.. ..
" Broken	5 00	5 25
" Egg and Stove	5 25	5 50
" Chestnut	4 00	4 25
Locust Mt. Lump, and Steamboat	5 25	5 50
" Broken	5 25	.. ..
" Prepared	5 50	.. ..
" Chestnut	4 25	.. ..
Lorberry Coal	5 75	.. ..
Shamokin	5 75	.. ..
Franklin. (Lykens Valley)	5 50	5 75
Broad Top	5 50	.. ..

Scranton Coal at Elizabethport, Feb. 23, 1867.

Lump	$5 00@	— —
Steamer	6 00	— —
Grate	6 50	— —
Egg	6 25	— —
Stove	6 50	— —
Chestnut	5 00	— —

Prices for Pittston Coal at Newburgh, Feb. 22, 1867.

Lump, per ton of 2240 lbs	$5 20	.. ..
Steamer, " " "	5 20	.. ..
Grate " " "	5 35	.. ..
Egg " " "	5 45	.. ..
Stove " " "	5 70	.. ..
Chestnut " "	4 40	.. ..

70 cents additional to New York.

Lackawanna at New York, Feb. 22, 1867.

Lump	.. ..	@.. ..
Steamer	.. ..	@.. ..
Grate	6 50	@.. ..
Egg	.. ..	@.. ..
Stove	6 50	@.. ..
Chestnut	.. ..	@.. ..

Lehigh Coal at Elizabethport, Feb. 22, 1867.

Lump	6 75@	$7 00
Steamboat and Broken	6 50	— —
Egg	6 50	— —
Chestnut	5 50	6 00
Stove	....	7 00

George's Creek and Cumberland Coal.

Run of mine, f. o. b. at Locust Point	$5 75@	.. ..
At Georgetown	5 50	.. ..

At Baltimore Feb. 23, 1867.

Wilkesbarre & Pittston W A., wholesale	$7 50@	$7 75
" " " retail	8 25	8 50
Lykens Valley & Sunbury R A., wholesale	7 50	7 75
" " " retail	8 25	8 50

Duty Bituminous $1.25. Other kinds 40 cents per ton
(From the Mercantile Gazette.)

At San Francisco, Jan. 22, 1867.

Australian	$....@	9 50
Do Wallsend	....	10 00
Pittston, ton	17 00	.. ..
Lehigh	18 00	.. ..
Cumberland, cks	....	25 00
do bulk	22 00	.. ..
Scranton	17 00	18 00
Liverpool	.. ..	.. ..
Scotch	.. ..	.. ..
West Hartly	12 00	.. ..
Vancouver Island	11 00	.. ..
Bellingham Bay	10 00	.. ..
California	6 00	8 00

Prices of Foreign Coals.

[REPORTED FOR THE JOURNAL OF MINING.]
BY H. L. PARMELE & 1680., 32 Pine street, N. Y.
Duty $1.25 per ton.

Liverpool Gas Caking	$11 00
" " Cannel	16 00
" House "	19 00
" " Orrel	16 00

Per ton 2240 lbs.
PRICES FROM YARD:

Liverpool Orrell, screened	20 00
" Cannel, "	22 00

per ton 2000 lbs. delivered.

Prices of Provincial Coals.

[REPORTED FOR THE JOURNAL OF MINING.]
BY LOUIS J. BELLONI, JR., 43 Pine street, N. Y.
Duty $1.25 per ton.

Block House (on board)	$1 75	gold
Gowrie "	1 75	"
Lingan "	1 75	"
Sidney "	2 25	"
Pictou "	2 25	"
Glace Bay "	1 75	"
International Co.'s "	1 75	"
Slack Coal "	75	"

Coal Freights.

From Elizabethport.

Albany	$1 00@	— —	New London	1 30@	— —
Boston	2 00	— —	Newport	1 50	— —
Bridgeport	1 20	— —	New York	70	— —
Fall River	1 50	— —	Norwalk	1 20	— —
Hartford	1 75	— —	Norwich	1 40	— —
Hudson	1 00	— —	Pawtucket	1 75	— —
Lynn	—	— —	Portland	2 00	— —
Middletown	1 50	— —	Portsmouth	2 15	— —
New Bedford	1 50	— —	Providence	1 50	— —
Newburyport	2 25	— —	Salem	2 00	— —
New Haven	1 20	— —	Taunton	1 40	— —

From Baltimore.

To Philadelphia	$2 50@	— —	Boston	3 75@	— —
New York	2 25	— —			

From Georgetown or Alexandria.

To Philadelphia	$2 50	— —	Boston	3 50	3 75
New York	3 25	3 50			

By Railroad.

Transportation from Schuylkill Haven to Pt. Richmond	$2 25
Freight from Pt. Richmond to New York	1 60
Total	$3 85

From Port Carbon 8 cents per ton more.

Freights on Coal to Elizabethport.

L. V. R. R. from Mauch Chunk to Easton	$1 15
C. R. R. of N. J., Easton to Elizabethport	1 66
	2 85
Shipping expenses at Elizabethport	50
Total	$3 11

Provincial Freights.

Sydney to N. Y.	$4 50
Lingan	4 50
Cow Bay	4 50
Big Glace Bay	4 50
Little "	4 25

Foreign Freights.

New Castle and Ports on Tyne	19£@ keel.
Liverpool	15s.@ 20s

COPPER ORES.

NEW YORK, Feb. 21, 1867.

25 @ 50 per cent	$4 87½@5 00
20 @ 25 "	4 50 4 87½
15 @ 20 "	4 25 4 50
10 @ 15 "	3 75 4 25

No business since last report. Prices unchanged.

BALTIMORE, Feb. 20, 1867.

Delivered at Baltimore.		
50 per cent and over	(Currency)	$5 00
25 " "		4 50@5 00
15 " "		4 00@4 25
10 " "		3 25@3 75
6 " "		3 25@3 50
5 "	under	....

Rich ores are in demand at $4 50@5 per unit, say for $25 and upwards. Low grades neglected—$3 50@4.

SAN FRANCISCO STOCK MARKET.

Latest by Telegraph.—Feb. 18.

Name.	Bid per foot.	Name.	Bid per foot.
Gould & Curry	550	Crown Point	850
Savage	1850	Yellow Jacket	775
Chollar-Potasi	225	Belcher	125
Ophir	200	Alpha	..
Hale and Norcross	2000	Imperial per share	175
Cal. Steam Navigation Co.	62½	Cal. State Telegraph Co	32

FOREIGN MARKET REVIEW.

Weekly Metal Report.

LONDON, E. C., Jan. 25, 1867.

The severe frost has materially interfered with the regular course of business. Shipments have been almost suspended, and the Metal Market has been nearly at a standstill. Milder weather having now set in, there is every probability of a resumption of business.

IRON.—Welsh bars exchanged; Rails stiff, £5 15s to £6. The report from Staffordshire continues unsatisfactory. Orders are scarce, and prices are with difficulty maintained. Scotch Pig Iron has declined to 53s. 9d. cash.

COPPER.—The market continues very flat. Very little business has been done, and the sales which have taken place have been at low prices. English Tough has been obtainable at £82; Best at £83; Burra, £85 10s; Wallaroo, £84 10s; Chili, £75 10s to £76.

TIN.—Transactions have been curtailed, and prices are slightly in buyers' favor, still there is no great pressure to realize. We quote Straits £86 10s cash, £87 to £88 according to prompt; Banca, £89. English Tin commands full prices. The Dutch market has declined to 51½fl.

TIN-PLATES are in better demand, at steady prices.

LEAD.—Little business done. Market quiet. £20 for Pig.

SPELTER.—Early in the week the market was very quiet, but yesterday a large business was done for March delivery, at £22 and £22 5s; spot parcels realize £22 Special Outports, £22 to £22 5s; Common, £21 17s 6d.

Oil Trade Circular.

LONDON, Jan. 25, 1867.

There has been an average amount of business done this week at the same prices quoted in our last report. Crude Oil is rather firmer.

PETROLEUM CRUDE.—£15 13s per ton.
LUBRICATING OIL.—£12 to £21 per ton.
REFINED COAL OIL.—Best, 1s 5d per gallon.
CRUDE.—£6 to £8.
GLEASE.—£5 to £16 per ton.
PARAFFIN SCALES.—5d to 4½d per lb.
PITCH.—20s to 35s per ton.

STRANGE BROTHERS & Co.

Patent Claims.

Interesting to Miners, Millmen, Metallurgists, Oil-Men and Others.

The following claims have recently been issued from the United States Patent Office:

61,383.—APPARATUS FOR AMALGAMATING ORES.—Abner Bassett, Virginia City, Nevada:

I claim, 1st, The barrel, c, or its equivalent, having a hollow shaft, c, passing through it by which heat is introduced by exhaust steam or otherwise, substantially as described and for the purpose set forth.

2d. The hot-air shell or bath, g, for the purpose of applying heat by exhaust steam or otherwise to the outside of the vessel containing the pulp, whereby obdurate ores are made to amalgamate more freely, substantially as described and for the purpose specified.

3d. The application of steam or heat to the ore or pulp both through and around it without coming in direct contact with it; the said ore or pulp being confined in some suitable vessel, said vessel being inclosed in a shell or bath, for the purpose herein set forth.

61,426.—REVOLVING SLUICE FOR SAVING METALS.—T. D. and W. A. Hedger, Meadow Lake, Cal.:

We claim, 1st. A sluice with revolving belt, D, so constructed that the sides will form flexible joints, b, b, in passing around the drums, closing up and forming close joints while passing up and down the incline, forming a sufficient channel between them for the purpose described, substantially as set forth.

2d. The mouth-piece or opening, G, beneath the platform, so that the sand or pulp which is fed to the machine may enter a sufficient distance below to give the action and force to the water introduced through the opening, G, to sweep down the incline and carry with it the sand and debris, substantially as described for the purpose set forth.

3d. Separating the ore by passing the valuable portions up the incline and the debris down to the foot as waste matter, as described.

61,465.—AMALGAMATOR.—Juan A. Robinson, Jr., San Francisco, Cal.:

I claim an amalgamator constructed of copper and wood, or an alloy of copper with frictional surfaces, substantially as and for the purpose described.

61,471.—MACHINE FOR SEPARATING IRON FROM SAND.—George H. Sanborn, Boston, Mass.:

I claim the use of the cylinder, B, when provided with the magnets, g, g, g, one or more rows, arranged substantially as and for the purposes described, in combination with the brush, C, the hopper, D, the spout, E, the trough, F, and the drawer, J, substantial y as and for the purposes set forth.

61,571.—OIL-EJECTOR.—Henry Searle, Rochester, N. Y.:

I claim, 1st, The arrangement of two or more cocks, or equivalent valves, E, F, G and H, in combination with the pipes, A and B, for the purpose of changing the action of a column of compressed air or other fluid alternately from one ejector to another, substantially in the manner and for the purpose described.

2d. The arrangement of two or more cocks, or equivalent valves, E, F, G and H, in combination with the pipes, A and B, for the purpose of changing the action of a column of compressed air or other fluid alternately from one ejector to another, substantially in the manner and for the purpose described.

3d. The combination of the pipes, A, B, C, D, and cocks or valves, E, F, G, H, with independent ejectors, a and b, for the purpose of making the chamber of each ejector act alternately as a compressed-air chamber, and as an exhausted receiver.

Mineral and other On-dits.

☞ An English writer says: I observed large quantities of the cannel coal, and took some pains, both here and subsequently, at Kendall, St. Helens, and other places, to obtain the meaning of the term. A considerable quantity is procured at St. Helens, though the greater quantity comes from Wigan. It is dug out of the same shafts with ordinary coal, but exists in different seams. It appears to be a substance between the ordinary coal and jet. In Liverpool and elsewhere it is advertised by boards and placards—"Coal and Cannel sold here." It is invariably spelt "Cannel." If it has really taken its name from Kendal, the people of the town are not aware that it has any such origin; neither is there any reason that it should be called "Canal coal," it having been dug before canals were adopted, and transported together with larger quantities of ordinary coal. It seems to be the general opinion that having been used to light the men at their work, and serving as a candle, it became by corruption "Cannel" coal. It is singular how soon words and phrases creep into use, and totally obliterate every recollection of the cause that produced them.

☞ The Gold Hill *News* announces the completion of the new dump of the Imperial mine, where, instead of having four or five men with shovels to load a wagon, all that is to be done is for the teamster to turn a wheel, which raises a gate, and the ore runs down of its own accord, and loads the wagon in one-fourth the time in which it takes to load by the old method, thus saving not less than ten dollars a day in hired help, and about the same amount in time to the teams employed in hauling away the ore.

☞ Virginians are calling for a geological survey of their State. They think it beats Pennsylvania in mineral wealth.

☞ The tunnel between the islands of Sicily and Ortyga, built during the occupation of the former by the Greeks

was reopened a few years ago, and found to be twelve feet high by six wide, and about a mile in length. It is quite equal in all respects to that under the Thames, at London.

☞ The Comstock lode of Nevada is said to be turning out more silver and gold annually than did the famous mines of Potosi in their palmiest days, and which at one time built up a city of 160,000 inhabitants.

☞ A productive mine can be worked upon to a great depth. In Europe some of the workmen have gone down as low as three thousand feet

Special Scientific Brevities.

☞ To straighten a piece of steel already hardened and tempered, heat it lightly, not enough to draw the temper, and you may straighten it even on the anvil, if not really dead cold, by a hammer; but it is best to straighten it between the centres of a lathe, if a turned article, or on a block of wood with a mallet, where the article, cold, would break like glass. Warm, it will yield readily to such blows as are said to kill the devil easy.

☞ The great news in the French scientific world is the arrival of an enormous aerolite, sent to the Academy of Science by Marshal Bazaine, from Mexico; it weighs 870 kilogrammes. It was sent as a present to Marshal Vaillant, who has had it placed in the Museum of Natural History, where it attracts great attention.

☞ If a continuous solid iron rail were laid from New York city to Albany, no amount of force applied at one end could move the other in less than one minute and a quarter, the time required for mechanical force to travel in iron that distance.

☞ The Geographical Society of Paris has opened a subscription for M. Lesaint's proposed journey in the interior of Africa. The Society Scientifique has contributed 2,000 francs for this object.

SPECIAL NOTICES.

☞ Particular attention is directed to the advertisement of J. S. Phillips, C. E., M. E., etc., who arrived in this country several months ago, was sent out as Superintendent of the mining operations carried on by a New York company in Humboldt county, Nevada, and who immediately condemned and abandoned the same. It is not often that persons interested in mining can secure the services of a thoroughly honest as well as a capable man, on the ground, to examine and report upon their property.

☞ Quite recently, on the Lehigh Valley R. R., an oil train of six cars caught fire and was consumed. A few days afterward three more cars of oil were burned near Beaver Station, on the Catawissa railroad. These accidents, which occasioned the loss of many thousands of dollars, and which might have proven fatal to still more valuable lives, might easily have been prevented by the use of the patent tanks of the Petroleum Fire-proof Iron Tank Storage Company, which can be had by addressing the Company, 11 Broad street, New York.

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SIMPLE, DURABLE, RELIABLE.
ADAPTED TO EVERY VARIETY OF USE FOR WHICH A PUMP MAY BE REQUIRED, VIZ.,
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LEVI P. DODGE, Newburgh, N. Y.
May 13, 1862.
MANUFACTURED ONLY BY THE
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57 Fulton St., N. Y.,
Sole Proprietors of the Patent.
22:2:tf ☞ Send for Illustrated Circular.

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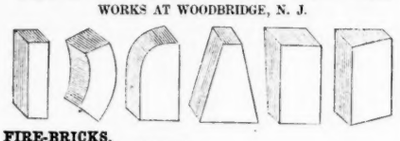
OFFICE AND DEPOT,
Foot of West Eleventh Street, New York.
WORKS AT WOODBRIDGE, N. J.



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VITRIFIED SEWER AND WATER PIPE
For Draining, Sewering Conducting Water, Gas, etc.
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22 2-xm

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A HALF INTEREST IN A FIRST CLASS Coal Property at La Salle, for sale. The owner not having capital for development, will sell one half at a bargain, or the whole if necessary, to make a sale. The adjoining property is well developed by several Companies.
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PARAFFINE MACHINERY OIL.
From Pure Cannel Coal, adapted to all classes of Stationary Machinery, Locomotive Engines, Railroad Cars, Woolen Factories, Cotton Spindles, Sewing Machines, &c.
Paraffine Wax and Paraffine Wax Candles. Also the Best Brands of Burning Oils. All Oils guaranteed to answer the purpose for which they are recommended.

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Send for Illustrated Circular. 21-2-xm

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For Sale, at Twenty-five Thousand Dollars, Two Tracts of Slate Land, in Heidelburg Township, Lehigh County, Penn., four miles from the Railway Depot at Slatington, containing Fourteen Acres, more or less, with Three Profitable Quarries, now at work, and capable of producing Six Thousand Dollars profit per annum, with an indefinite power of expansion. Terms, Ten Thousand Dollars cash, the residue on incumbrance, or in trade, at the option of buyers. Several Thousand Dollars have been expended in bringing these quarries to their present state of development. The Slate of these quarries is the same as that of the best quarries in this region, being located on the same vein. The Company has prepared for filing the necessary papers for their incorporation under the name above mentioned, and will record them or not, as buyers may prefer.
Parties in Lehigh county, near the quarries, will unite in this purchase to the extent of one-quarter interest, if permitted.
A conveyance will be in waiting to drive to the quarries, if parties (3 days in advance) address
Hon. SAM. J. KISTLER,
Slatington, Lehigh Co., Pa.
A diagram of the property may be seen at the office of the JOURNAL OF MINING, 37 Park Row. 16-v2:tf

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Assays and Analytical Examinations of Ores carefully attended to. 22:x:m

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REFERENCES.—Messrs. Daniels, Crozier, Coe & Co., Bankers, etc., 22 Nassau Street, New York. Orders by Telegram, Humboldt City, Nevada. 22:3t

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FOR SALE OR EXCHANGE for property in or near New York City.
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15:tf TAL. P. SHAFFNER, 32 Pine street, New York.

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He refers to the Hon. Stephen J. Field, Associate Justice of the Supreme Court of the United States.
Jan. 1, 1867. 18:12qp

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For Agencies and Circulars apply as above. 1-26xm

TO CONTRACTORS AND MINERS

The Commissioners on the Troy and Greenfield Railroad and Hoosac Tunnel, acting for the State of Massachusetts, invite Proposals, until the tenth day of March next, for Excavating said Tunnel at three different sections of that work.

This Tunnel, when completed, will be about 4 2-3 miles in length, extending from the Town of Florida, through the Hoosac Mountain, to the Town of North Adams.

The Eastern End has been penetrated from the grade of the Railroad 3500 feet, 2400 feet of which consist of an opening of about 10 cubic yards to each lineal foot, the same to be enlarged to a section containing about 17 cubic yards to each foot; the remaining 1100 feet being heading, now measuring upon an average 4 cubic yards per running foot, to be enlarged to the full section: making some 35,000 cubic yards to be removed.

A further section of the work will also be let to the successful bidder for the above-named enlargement, if satisfactory terms shall be offered.

The West rn End is worked from a shaft 318 feet deep. The easterly heading from this shaft—of about 6 cubic yards to each lineal foot—extends 1100 feet, and is to be enlarged to a section containing 17 yards per foot, requiring the removal of 12,000 cubic yards. Bids for that amount, and for an extension in either direction of the heading and enlargement at this point, will be received.

The Central Shaft, of an elliptical form, 27 by 15 feet, now 40 feet in depth, is to be sunk to grade, 1030 feet from the surface requiring the removal of about 9000 cubic yards.

All the work to be done is in Talcose Slate, and will require neither masonry nor supports of any kind.

Buildings, machinery, and means of ventilation, all of the most substantial character, have been provided, and will be furnished to contractors.

Ample sureties will be required from parties who may be contracted with, and the Commissioners reserve the right to reject all offers that may be made.

Plans and specifications may be seen on application to ALVAH CROCKER, at the Engineer's Office, North Adams, Mass.; and other information may be obtained from JAMES M. SHUTE, Room 10, No. 13 Exchange street, Boston, to whom proposals may be directed.

JAMES M. SHUTE,
ALVAH CROCKER,
CHARLES HUDSON,
Boston, January 30, 1867. (2-19:i) Commissioners.

DELAWARE, LACKAWANNA & WESTERN RAILROAD COMPANY.
47th AUCTION SALE
50,000 to 60,000 TONS
SCRANTON COAL.
On Wednesday, February 27, 1867.

NEW YORK, February 15, 1867.
The Delaware, Lackawanna and Western Railroad Company will sell by Messrs. JOHN H. DRAPER & CO., Auctioneers, at the Company's Sales Room, No. 26 Exchange Place, corner of William street, New York, on WEDNESDAY, February 27, inst., at 12 o'clock, noon,
50,000 TO 60,000 TONS
of Fresh Mined Coal, from the Lackawanna Regions, of the usual sizes, deliverable at their Depot, Elizabethport, N. J., during the month of March, 1867.
The sale will be positive; each lot put up will be sold to the highest bidder; no bids, in any form whatever, being made for account of or on behalf of the Company. The conditions will be fully made known at the time of sale.
Terms: Fifty cents per ton, payable in current funds, on the day of sale, and the balance, within ten days thereafter, at the Office of the Company. JOHN BRISBIN,
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[TESTIMONIAL.]
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PROVIDENCE, R. I., Dec. 18, 1866. Vol. 2-11qp

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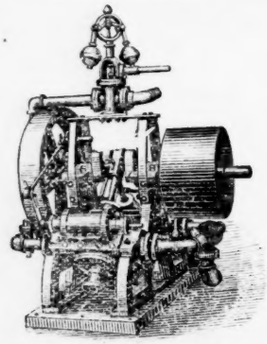

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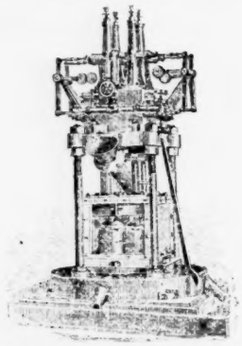

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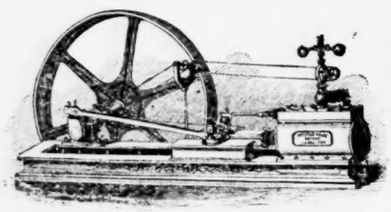

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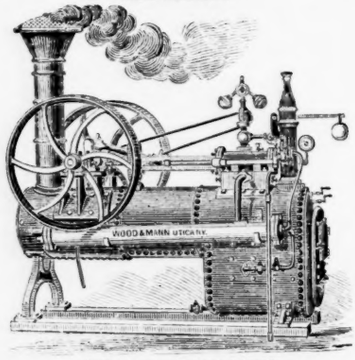

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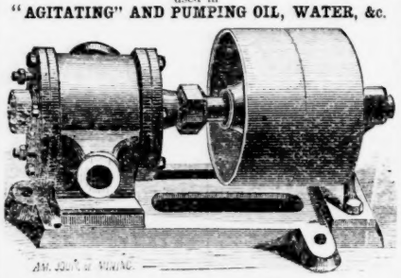

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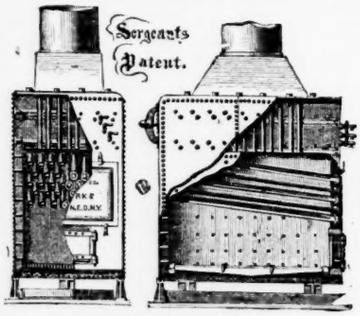

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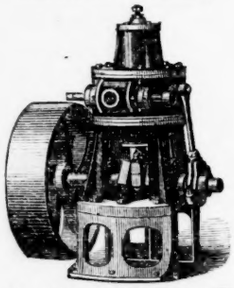

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